

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief

No. 1 WASHINGTON, D. C., DECEMBER 17, 1930 WINTER 1930-31

REVIEW OF SNOWFALL CONDITIONS FOR THE SEASON TO DATE

Late in September a considerable snowfall for the time of year occurred in the Black Hills region, where two stations reported falls exceeding 8 inches on the 25th. Various elevated portions of the far West had light to moderate falls about the same time.

During October the country, as a whole, had comparatively little snowfall, the higher portions of the far Southwest particularly noting either no snow or almost none. From northeastern Washington eastward to Montana and southeastward to central Nebraska there was a considerable fall about the 14th to 18th. Likewise about the 16th to 20th considerable snow fell from northern Minnesota eastward to northeastern New York, the amounts in much of the Upper Peninsula of Michigan and the northern tip of the lower peninsula exceeding 15 inches.

The first 10 days of November were without snowfall of consequence, save in a few parts of the Lake region and the Northeastern States. The middle decade, however, brought widespread snowfall to the northern and middle parts of the Plateau region, the southern half of the Rocky Mountain region, and much of Montana and western South Dakota. Over a large part of Colorado, the northern portions of New Mexico and Utah, and southern Idaho amounts much in excess of the normal November snowfall occurred within a few days, with some interruption to traffic and loss of livestock, though the snowfall in most respects was beneficial. The eastern half of the country generally had very little snowfall during the middle decade and the first days of the final decade. The final week of November, however, brought snowfall over practically all that part of the eastern half of the country to northward of northern Missouri, central Illinois and Indiana, and the southern parts of Ohio and West Virginia, but there was practically none between the Appalachian Mountains and the Atlantic coast. The snowfall was unusually heavy for November about the 26th in northeastern Ohio and parts of the central Appalachian region.

The first week of December was mainly mild, especially in the north-central portion of the country and westward to the northern part of the Divide; much melting resulted from this warmth and large areas covered at the close of November became bare. Some new snow fell, however, in the eastern portions of Oregon and Washington, and there was considerable glaze and snow on the 4th and 5th in parts of Iowa. The second week brought some snowfall to the northeastern portion of the country, and about the 14th snow fell from the northern Rocky Mountain region southeastward to the southern Plains and the Ozark Mountains, while many portions of the Lake region had light falls.

DEPTH OF SNOW ON GROUND

The snow depths are small at the present time save over a very limited area in the Northeastern States and in some elevated districts of the far West. The southern portions of Kansas and Missouri, northern Oklahoma, and northwestern Arkansas have moderate depths on account of the recent fall, and similar amounts are reported from the Valley of the Red River of the North. The Lake region is practically all covered, but only to slight depths, while large portions of the Ohio, middle Mississippi, and lower Missouri Valleys are entirely bare. Ranges are bare, or practically so, over a great part of South Dakota, western North Dakota, and eastern and central Montana.

ICE IN RIVERS AND HARBORS

Less ice has formed up to the present time than usually is noted by the middle of December. The lower Lakes are still practically without ice; likewise the rivers of the Atlantic coast and the Ohio River system. In the upper Lakes some harbors report small amounts.

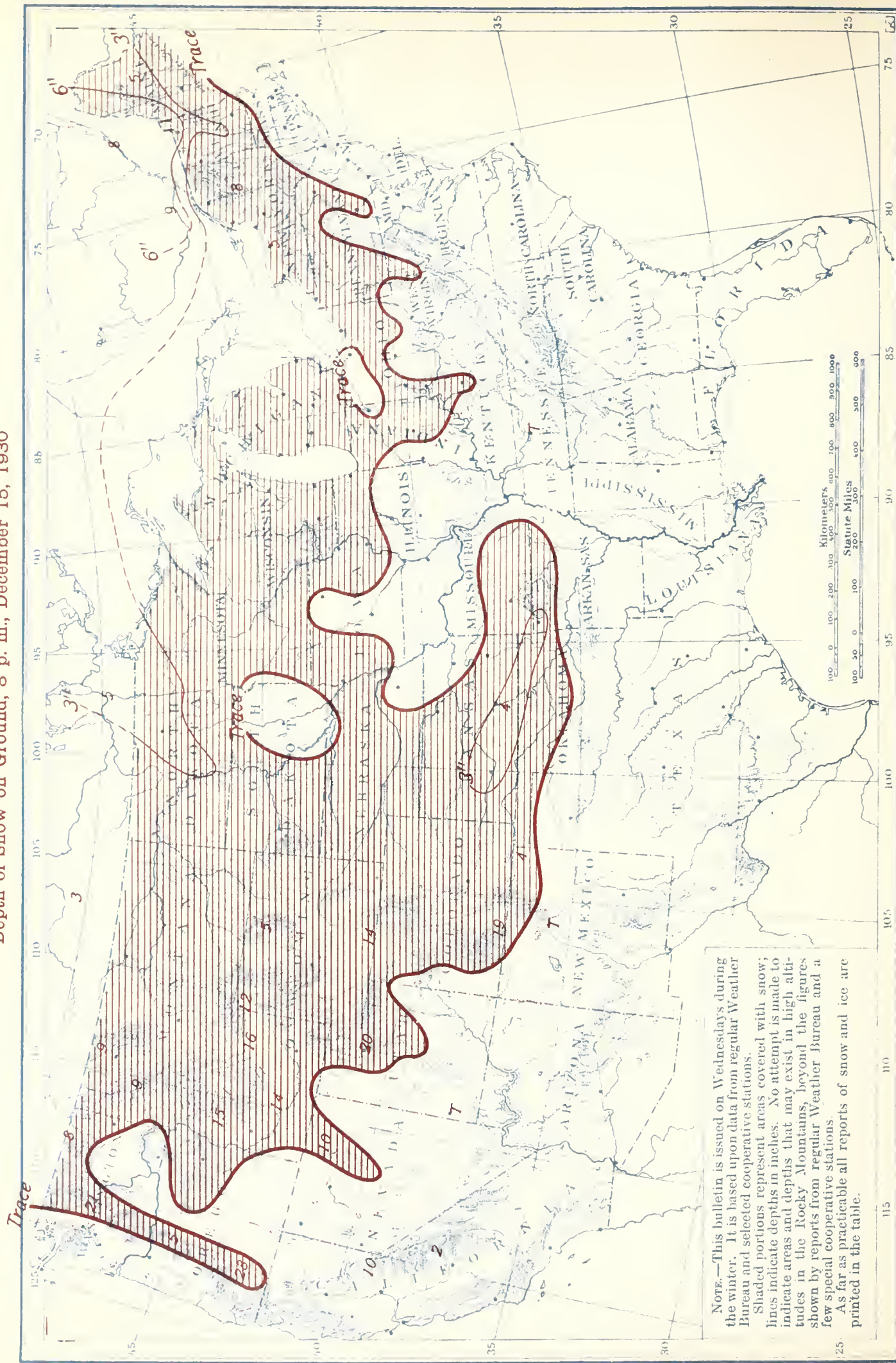
SNOW DEPTH AND ICE THICKNESS, 8 P. M., DECEMBER 15, 1930

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>Montana</i>	<i>Inches</i>	<i>Inches</i>
Eagle	14	.....	Belton	9	.....
Fairbanks	9	24.0	Bozeman	6	.....
Nome	4	.....	Haugan	9	.....
Tanana	10	.....	Kalispell	6	.....
<i>Arkansas</i>			Red Lodge	2	.....
Bentonville	3	.....	Thompson Falls	2	.....
<i>California</i>			<i>Nebraska</i>		
Huntington Lake	2	.....	Broken Bow	2	.....
Soda Springs	10	.....	McCook	3	.....
<i>Colorado</i>			<i>Nevada</i>		
Cumbres	19	.....	Arthur	6	.....
Denver	3	.....	North Fork	10	.....
Rico	6	.....	<i>New Hampshire</i>		
Steamboat Springs ...	11	.....	Berlin	4	.....
<i>Idaho</i>			Hanover	3	.....
Idaho City	12	.....	Keene	1	.....
McCall	15	.....	Pittsburg	11	.....
Pierce City	10	.....	Woodsville	2	.....
Pocatello	5	.....	<i>New Mexico</i>		
Soldier Creek	14	.....	Aurora	5	.....
Spencer	16	.....	Des Moines	4	.....
Vienna Mine	12	.....	Elizabethtown	4	.....
<i>Illinois</i>			<i>New York</i>		
Freeport	2	.....	Alfred	1	.....
<i>Indiana</i>			Beaver River	8	.....
Collegeville	1	.....	Herkimer	1	.....
Indianapolis	T.	.....	Ithaca	1	.....
Notre Dame	2	.....	Lake Placid	4	.....
<i>Iowa</i>			Lowville	8	.....
Dubuque	2	*	Oswego	2	0.5
Iowa City	3	.....	Rochester	5	0.0
Marshalltown	1	.....	Saranac Lake	6	.....
Waterloo	2	.....	Watertown	1	.....
<i>Kansas</i>			<i>North Dakota</i>		
Dodge City	4	.....	Bismarck	3	12.0
Goodland	T.	.....	Williston	T.	8.0
Larned	4	.....	<i>Oklahoma</i>		
Liberal	2	.....	Broken Arrow	2	.....
Medicine Lodge	3	.....	Oklahoma City	T.	.....
<i>Maine</i>			<i>Oregon</i>		
Gardiner	T.	*	Baker	2	.....
Greenville	7	7.0	Crater Lake	28	.....
Houlton	2	.....	Fish Lake	2	.....
Millinocket	5	.....	Government Camp	5	.....
Oldtown	3	.....	Wallowa	1	.....
<i>Michigan</i>			<i>Pennsylvania</i>		
Alpena	1	1.0	Harrisburg	0	1.0
Ann Arbor	2	.....	Scranton	T.	.....
Battle Creek	2	.....	Warren	1	.....
Bloomington	2	.....	<i>Utah</i>		
Cadillac	2	.....	Duchesne	10	.....
Coldwater	2	.....	Logan	4	.....
Grand Haven	1	.....	Provo	2	.....
Ironwood	2	.....	Silver Lake	20	.....
Munising	6	.....	<i>Vermont</i>		
<i>Minnesota</i>			Brattleboro	2	*
Collegeville	2	.....	Enosburg Falls	2	.....
Duluth	T.	7.0	White River Junction	3	.....
Ely	2	.....	<i>Washington</i>		
Moorhead	T.	10.0	Chesaw	8	.....
Mora	2	.....	Snoqualmie Pass	21	.....
Roseau	3	.....	<i>Wisconsin</i>		
St. Paul	T.	*	Fond du Lac	1	.....
Thief River Falls	4	.....	Green Bay	1	10.0
Virginia	1	.....	Racine	1	.....
<i>Missouri</i>			<i>Wyoming</i>		
Arcadia	T.	.....	Eixon	14	.....
Mountain Grove	4	.....	Dome Lake	5	.....
Poplar Bluff	1	.....	Evanston	8	.....
Springfield	2	.....	South Pass City	4	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

H. C. HUNTER.

Depth of Snow on Ground, 8 p. m., December 15, 1930



NOTE.—This bulletin is issued on Wednesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.

Shaded portions represent areas covered with snow; lines indicate depths in inches. No attempt is made to indicate areas and depths that may exist in high altitudes in the Rocky Mountains, beyond the figures shown by reports from regular Weather Bureau and a few special cooperative stations.

As far as practicable all reports of snow and ice are printed in the table.

SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU

CHARLES F. MARVIN, Chief

No. 2

WASHINGTON, D. C., DECEMBER 26, 1930

WINTER 1930-31

CLIMATOLOGICAL DIVISION

OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED DECEMBER 22

A storm central in the east Gulf on Tuesday morning, the 16th, moved northeastward close to the south Atlantic coast during the next 36 hours, causing snowfall over eastern Tennessee, the Virginias, and all of the Carolinas save the coast sections. In the Piedmont portion of the Carolinas heavy falls occurred, some stations measuring more than a foot. A great part of this snow had melted before the end of the week. About this time considerable snow fell over the northern half of the Plateau region.

On the 18th and 19th, in connection with a storm which followed an easterly course near the northern boundary, there were moderate to heavy falls of snow in much of Iowa, Minnesota and Wisconsin, and over practically all of the upper Lake region. Farther eastward, in connection with this storm and another which moved northward near the Atlantic coast about the same time, moderate snowfall occurred over central Pennsylvania and most of New York and New England.

DEPTH OF SNOW ON GROUND

Light snow, save considerable depths in parts of Maine, northern New York, and western Virginia, now covers nearly all of the Appalachian region, and in Virginia and northern New England the snow-covered area extends eastward nearly or quite to the sea coast. The region of the lower Lakes and the northern drainage of the Ohio River are scantily covered for the most part, but the region of the upper Lakes has considerable snow. Substantially all the Mississippi Valley north of central Illinois and the southern boundary of Iowa now has a snow cover, and a very thin covering is generally found over the northern two-thirds of the Plains. In California and the districts to south-eastward scarcely any snow is yet reported in the higher portions.

Compared with last week, an area in southern Kansas, northern Oklahoma, and the Ozark region has lost all or nearly all of its moderate cover, but an extensive area in the middle and southern Appalachians has received a cover. Increases in depth amounting to from 4 to nearly 10 inches are reported from many interior portions of New York and from some stations in the western half of lower Michigan. In the more elevated portions of the far West the most notable gains in snow depths have been in the Cascade Mountains and eastern Idaho.

ICE IN RIVERS AND HARBORS

During the week ended the 22d the northern half of the country east of the Rocky Mountains had no particularly cold weather for December, but moderate cold prevailed in the Northeast.

At nearly all stations where ice was measured last week there was an increase in thickness or a maintenance of the situation that had been reported. At some stations in northern New England and in the upper course of the Mississippi River, there were increases of from 4 to 6 inches.

The rivers of New England are mainly ice-bound, but in those of the Middle Atlantic States there is as yet only a little ice, save in a few localities. The Ohio River and its large tributaries, the lower course of the Missouri, and the Mississippi from its junction with the Missouri downward are free from ice, or practically so. At Moorhead, Minn., 13 inches of ice were measured in the Red River of the North, while part of the upper Missouri River had almost as much. The harbors of the upper Lakes report moderate thicknesses, save in a few cases.

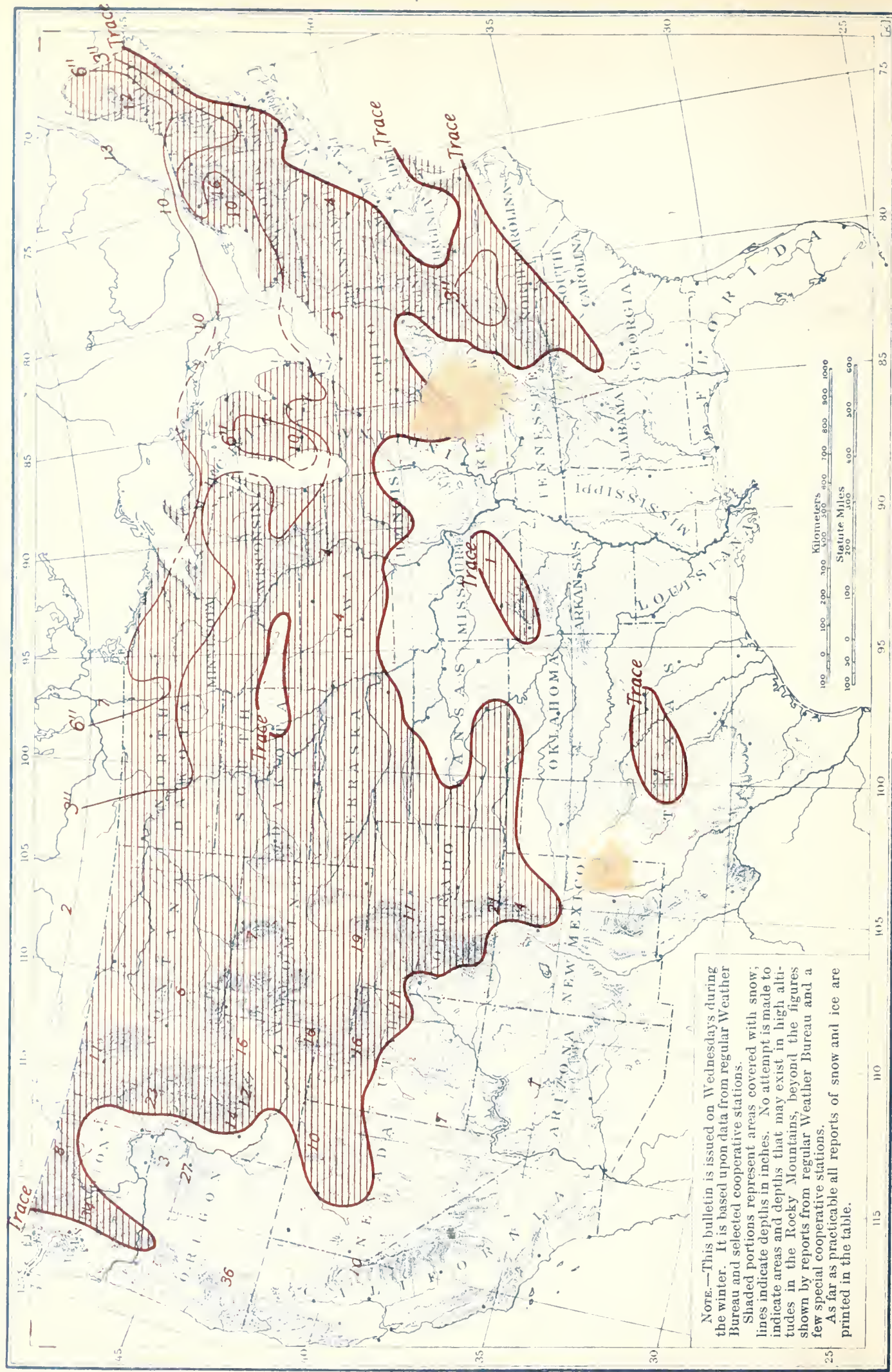
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., DECEMBER 22, 1930

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>California</i>	<i>Inches</i>	<i>Inches</i>	<i>New Mexico</i>	<i>Inches</i>	<i>Inches</i>
Soda Springs	10	.....	Aurora	4	.....
<i>Colorado</i>			Las Vegas	1	.....
Cumbres	21	.....	<i>New York</i>		
Dillon	11	.....	Beaver River	16	.....
Leadville	1	.....	Binghamton	2	*
<i>Connecticut</i>			Buffalo	4	*
Hartford	3	*	Canton	2	.....
<i>Georgia</i>			Jeffersonville	4	.....
Atlanta	T.	.....	Malone	1	.....
<i>Idaho</i>			Ogdensburg	1	.....
Hailey	6	.....	Rome	6	.....
Kirkham	15	.....	<i>North Carolina</i>		
Mascot Mine	9	.....	Asheville	2	.....
Pocatello	14	.....	Charlotte	1	.....
Shake Creek	14	.....	Greensboro	4	.....
<i>Illinois</i>			<i>North Dakota</i>		
Chicago	1	.....	Bismarck	3	12.0
Peoria	T.	1.0	Ellendale	T.	.....
Springfield	T.	.....	<i>Ohio</i>		
<i>Indiana</i>			Beverly	T.	.....
Marion	2	.....	Cortland	3	.....
Notre Dame	3	.....	Dover	1	.....
<i>Iowa</i>			Holgate	2	.....
Davenport	1	†	Zanesville	T.	.....
Des Moines	1	6.0	<i>Oregon</i>		
Forest City	3	.....	Crater Lake	36	.....
Iowa Falls	4	.....	Fish Lake	12	.....
<i>Kansas</i>			Imperial Mine	27	.....
Dodge City	1	.....	Olive Lake	20	.....
Wichita	T.	.....	<i>Pennsylvania</i>		
<i>Kentucky</i>			Bellefonte	2	.....
Louisville	T.	0.0	Chambersburg	3	.....
<i>Maine</i>			Gordon	4	.....
Farmington	9	.....	<i>Tennessee</i>		
Greenville	12	12.0	Knoxville	T.	0.0
<i>Maryland</i>			<i>Texas</i>		
Oakland	2	.....	Abilene	1	.....
Princess Anne	T.	.....	Dallas	T.	.....
<i>Michigan</i>			<i>Utah</i>		
Benzonia	6	.....	Ogden	2	.....
Detroit	3	†	Salt Lake City	6	.....
East Tawas	1	.....	Silver Lake	16	.....
Grand Haven	10	.....	<i>Vermont</i>		
Grayling	7	.....	Bellows Falls	3	.....
Houghton	9	4.0	Burlington	2	0.0
Marquette	9	0.0	Northfield	3	.....
Port Huron	6	6.0	St. Johnsbury	4	.....
Sault Ste. Marie	3	*	<i>Virginia</i>		
<i>Minnesota</i>			Cape Henry	1	0.0
Duluth	1	5.0	Wytheville	8	.....
Ely	6	.....	<i>Washington</i>		
St. Paul	2	*	Chesaw	8	.....
Thief River Falls	8	.....	Snoqualmie Pass	34	.....
<i>Missouri</i>			Spokane	2	.....
Hannibal	0	*†	Twisp	4	.....
Rolla	1	.....	<i>West Virginia</i>		
Springfield	T.	.....	Bayard	2	.....
<i>Montana</i>			Camden-on-Gauley	T.	.....
Great Falls	T.	.....	Elkins	1	0.0
Kalispell	6	.....	<i>Wisconsin</i>		
Loweth	6	.....	Milwaukee	5	.....
Thompson Falls	4	.....	Spooner	4	.....
<i>Nebraska</i>			Stevens Point	3	.....
Alliance	T.	.....	<i>Wyoming</i>		
<i>Nevada</i>			Casper	3	.....
Austin	1	.....	Dixon	19	.....
North Fork	10	.....	Evanston	10	.....
<i>New Hampshire</i>			Foxpark	11	.....
Concord	3	3.0	Yellowstone Park	12	.....
Hanover	4	.....	Yoder	T.	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T. indicates trace.

Depth of Snow on Ground, 8 p. m., December 22, 1930



SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU

CHARLES F. MARVIN, Chief

No. 3

WASHINGTON, D. C., DECEMBER 31, 1930

WINTER 1930-31

CLIMATOLOGICAL DIVISION

OLIVER L. PASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED DECEMBER 29

The most important snowfall during the week occurred about the 25th to 27th from the lower Ohio Valley eastward to Pennsylvania and northern Virginia and northeastward to Maine. The storm in connection with which this snow occurred was centered at 8 p. m. of the 26th in southeastern Virginia, and pursued a northeastward course; on the morning of the 28th the center was east of Nova Scotia, with marked gain in energy.

The northern part of the upper Lake region had a moderate snowfall during the last two days of the week in connection with storms in southern Canada. No other snowfall of consequence occurred east of the Rocky Mountain region.

From the middle Rocky Mountain slope eastward over Nebraska and Iowa to the southern portion of the upper Lake region much of the snow reported on the 22d disappeared, chiefly because of mild temperatures during the first half of the week.

DEPTH OF SNOW ON GROUND

A light to considerable cover of snow is now found over substantially all of New England, New York, and northeastern-most Pennsylvania, and a small area in the mountains of the Virginias has from 2 to 5 inches. The Lake region and the Ohio Valley are scantily covered for the most part.

The upper Mississippi Valley is partly bare and partly covered to depths not exceeding 3 inches. The middle and northern Plains are mainly free from snow, save that about all of North Dakota and a limited area in Nebraska report a little.

In Kentucky and southern Indiana and from the vicinity of Chesapeake Bay to the eastern coast of Maine, areas that were bare a week ago are now covered, but the snow reported last week in northern Georgia, central North Carolina, and southern Virginia has almost wholly disappeared.

ICE IN RIVERS AND HARBORS

From the northern Plains eastward to the upper Lakes the week averaged milder than normal and several stations in these districts report a decreased amount of ice, compared with the 22d, and a few that had little report its disappearance. In New England the temperature showed less departure from normal, and many stations, particularly in the northern portion, find moderate increases in ice thickness.

The southern Middle Atlantic States and the Ohio Valley region averaged somewhat colder than normal, and a few stations that had not reported ice previously this season have now small amounts. Many portions of the Allegheny and Monongahela Rivers and their tributaries are now frozen.

Substantially all the rivers in New England now are frozen over, and the Mohawk River has ice in many portions, though the middle section of the Hudson is practically ice-free. Some ice, but usually little, is reported from portions of the Susquehanna, Potomac, and James Rivers.

The harbors of the Lake region have comparatively small amounts of ice in most cases, but at Duluth, Minn., a thickness of 8 inches has been reached.

The Missouri River is now frozen from Williston, N. Dak., to below Pierre, S. Dak., and some ice is noted at points lower down the river to Omaha, Nebr. The upper Mississippi River has some ice, the greatest thickness noted being 7 inches at Dubuque, Iowa.

Little natural ice has been harvested as yet.

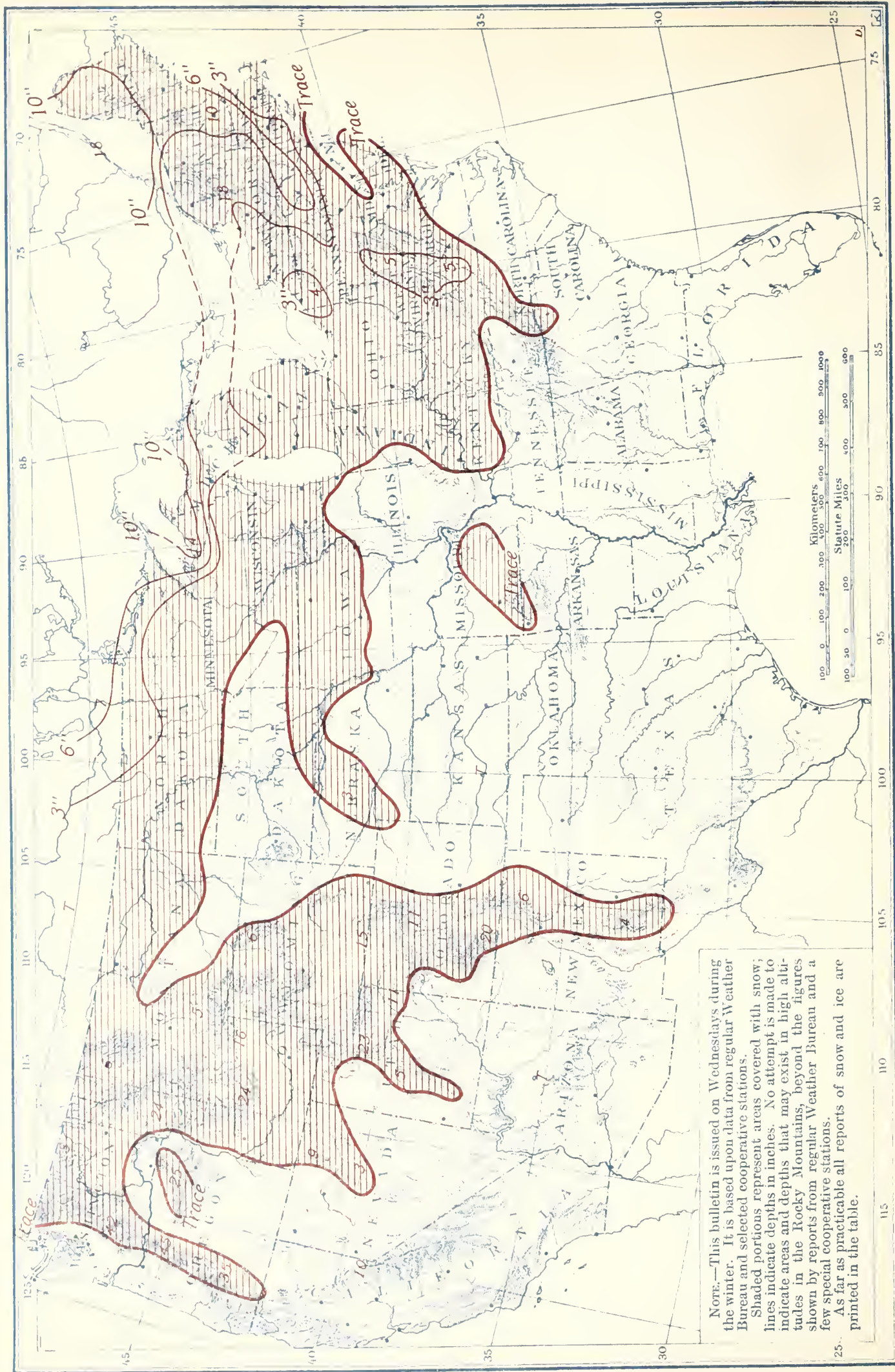
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., DECEMBER 29, 1930

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Cordova.....	2	.....	Concord.....	10	8.0
Fairbanks.....	12	25.5	Durham.....	7	.....
Nome.....	6	.....	Pittsburg.....	12	.....
<i>California</i>			<i>New Jersey</i>		
Soda Springs.....	10	.....	Newton.....	6	.....
<i>Colorado</i>			<i>New Mexico</i>		
Crested Butte.....	4	.....	Aurora.....	6	.....
Cumbres.....	20	.....	Chama.....	7	.....
Pueblo.....	0	†	Cloudcroft.....	4	.....
Steamboat Springs...	15	.....	Elizabethtown.....	5	.....
<i>Connecticut</i>			<i>New York</i>		
New Haven.....	4	0.0	Albany.....	2	†
West Cornwall.....	12	.....	Beaver River.....	18	.....
<i>District of Columbia</i>			Buffalo.....	1	*
Washington.....	T.	*	Lowville.....	7	.....
<i>Idaho</i>			Poughkeepsie.....	4	.....
Big Creek.....	18	.....	Rochester.....	1	2.0
Lewiston.....	0	*	Warwick.....	7	.....
McCall.....	24	.....	<i>North Dakota</i>		
Pocatello.....	13	.....	Bismarck.....	2	17.5
Vienna Mine.....	24	.....	Williston.....	T.	13.0
<i>Indiana</i>			<i>Ohio</i>		
Columbus.....	2	.....	Charlestown.....	3	.....
Shoals.....	1	.....	Sandusky.....	T.	5.0
Terre Haute.....	0	0.5	Toledo.....	T.	*
<i>Iowa</i>			<i>Oregon</i>		
Dubuque.....	2	7.0	Crater Lake.....	35	.....
Keokuk.....	0	1.5	Government Camp...	45	.....
Sioux City.....	T.	*†	Meacham.....	15	.....
<i>Kentucky</i>			Olive Lake.....	19	.....
Beattyville.....	1	.....	<i>Pennsylvania</i>		
Lexington.....	2	.....	Confluence.....	3	.....
Maysville.....	1	.....	Erie.....	3	*
Owensboro.....	1	.....	Freeland.....	13	.....
<i>Maine</i>			Harrisburg.....	T.	4.0
Eastport.....	6	0.0	Warren.....	3	.....
Gardiner.....	7	5.0	<i>South Dakota</i>		
Greenville.....	11	13.0	Huron.....	0	9.5
Millinocket.....	12	.....	Pierre.....	0	9.5
Portland.....	7	0.0	<i>Utah</i>		
Van Buren.....	9	.....	Deseret.....	5	.....
<i>Massachusetts</i>			Logan.....	5	.....
Concord.....	9	.....	Salt Lake City.....	5	.....
Holyoke.....	8	3.0	Silver Lake.....	23	.....
Williamstown.....	2	.....	Watson.....	11	.....
<i>Michigan</i>			<i>Vermont</i>		
Cadillac.....	5	.....	Brattleboro.....	8	7.0
Detroit.....	1	†	Burlington.....	2	0.0
Escanaba.....	1	*	Enosburg Falls.....	5	.....
Grand Rapids.....	3	.....	<i>Virginia</i>		
Newberry.....	8	.....	Buchanan.....	5	.....
Saginaw.....	2	.....	Dale Enterprise.....	4	.....
<i>Minnesota</i>			Lynchburg.....	T.	*
Duluth.....	T.	8.0	<i>Washington</i>		
Fort Ripley.....	3	.....	Chesaw.....	8	.....
Moorhead.....	T.	12.5	Paradise Inn.....	42	.....
Roseau.....	5	.....	Snoqualmie Pass...	37	.....
St. Paul.....	1	*	<i>West Virginia</i>		
<i>Missouri</i>			Hinton.....	2	.....
Hannibal.....	0	*†	Williamson.....	1	.....
<i>Montana</i>			<i>Wisconsin</i>		
Bozeman.....	5	.....	Fond du Lac.....	3	.....
Loweth.....	4	.....	Green Bay.....	1	4.5
Missoula.....	2	.....	Medford.....	2	.....
<i>Nebraska</i>			Racine.....	4	.....
Imperial.....	4	.....	<i>Wyoming</i>		
Omaha.....	T.	†	Dixon.....	15	.....
<i>Nevada</i>			Dome Lake.....	6	.....
Arthur.....	6	.....	Evanston.....	8	.....
Eureka.....	3	.....	South Pass City.....	2	.....

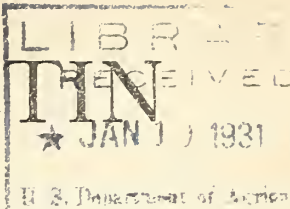
*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

Depth of Snow on Ground, 8 p. m., December 29, 1930



SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief



No. 4

WASHINGTON, D. C., JANUARY 7, 1931

WINTER-1930-31

CLIMATOLOGICAL DIVISION OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED JANUARY 5

During the first three days of the week two storms, moving eastward near the northern boundary from Minnesota to Maine, brought light to heavy falls of snow to most of the Lake region and to the northern portions of New York and New England. From New Year's Day onward scarcely any snow fell east of the Rocky Mountains until the 5th when the intense storm which traversed the south-central and southeastern portions of the country brought light snowfall in some parts of the area north-west of its path, especially in the middle Ohio Valley and the southern Appalachians.

In the higher portions of the Pacific and Plateau States, and some parts of Colorado and New Mexico, snow occurred during the 1st to 4th and in portions of the far Northwest on the 5th as well. The fall was decidedly heavy at some of the loftiest of the reporting stations.

DEPTH OF SNOW ON GROUND

The more mountainous portions of New England and New York have a moderately deep snow cover, and the greater part of Pennsylvania, some mountain areas in the Virginias, and nearly all the Lake region have a slight cover, except the northern half of Michigan a considerable amount. Northwestern Illinois, northeastern Iowa, and nearly all of Minnesota and North Dakota are thinly covered, save that close to the Canadian border from the 100th meridian to Lake Superior several inches are found. In the Plateau and Pacific States the area covered is much larger than at any previous time since mid-December.

The Ohio Valley, as a whole, has lost its cover of snow within the last week; also a strip east of the Appalachian Mountains from North Carolina to New Jersey. In the central portion of the country, much of Nebraska and western Iowa have become bare.

Parts of Arizona, southern Utah, Nevada, and especially California and Oregon have gained a snow cover during the week. At a few points in the Pacific States increases in depth of more than 20 inches are noted, and some stations in the Plateau region have gained more than 5 inches. The greatest depth reported this week is 71 inches in Mount Rainier National Park, Wash.

ICE IN RIVERS AND HARBORS

In the northeastern portion of the country the first days of the week were marked by low temperatures, but milder weather came later. The north-central portion of the country had milder weather than normal most of the week, but experienced lower temperatures at the close. Substantially all stations that reported ice last week now note either no change or an increase in the amount, though in only a few cases are the increases more than 2 inches.

In the New England and Middle Atlantic States moderate thicknesses are noted on the upper portions of most rivers, but the tidewater portions of the Connecticut, Hudson, and rivers farther south have very little ice. In the Lake region many harbors have no ice, or none of consequence.

The Ohio River is almost entirely free of ice, but a little is to be found in some tributaries. The upper Mississippi and the middle and upper portions of the Missouri River and their tributaries have usually light to moderate thicknesses, but in most cases less ice than generally forms by this date.

No large amounts of natural ice seem to have been gathered as yet in the eastern and central portions of the country, but in some elevated districts west of the Divide the harvest has made considerable progress.

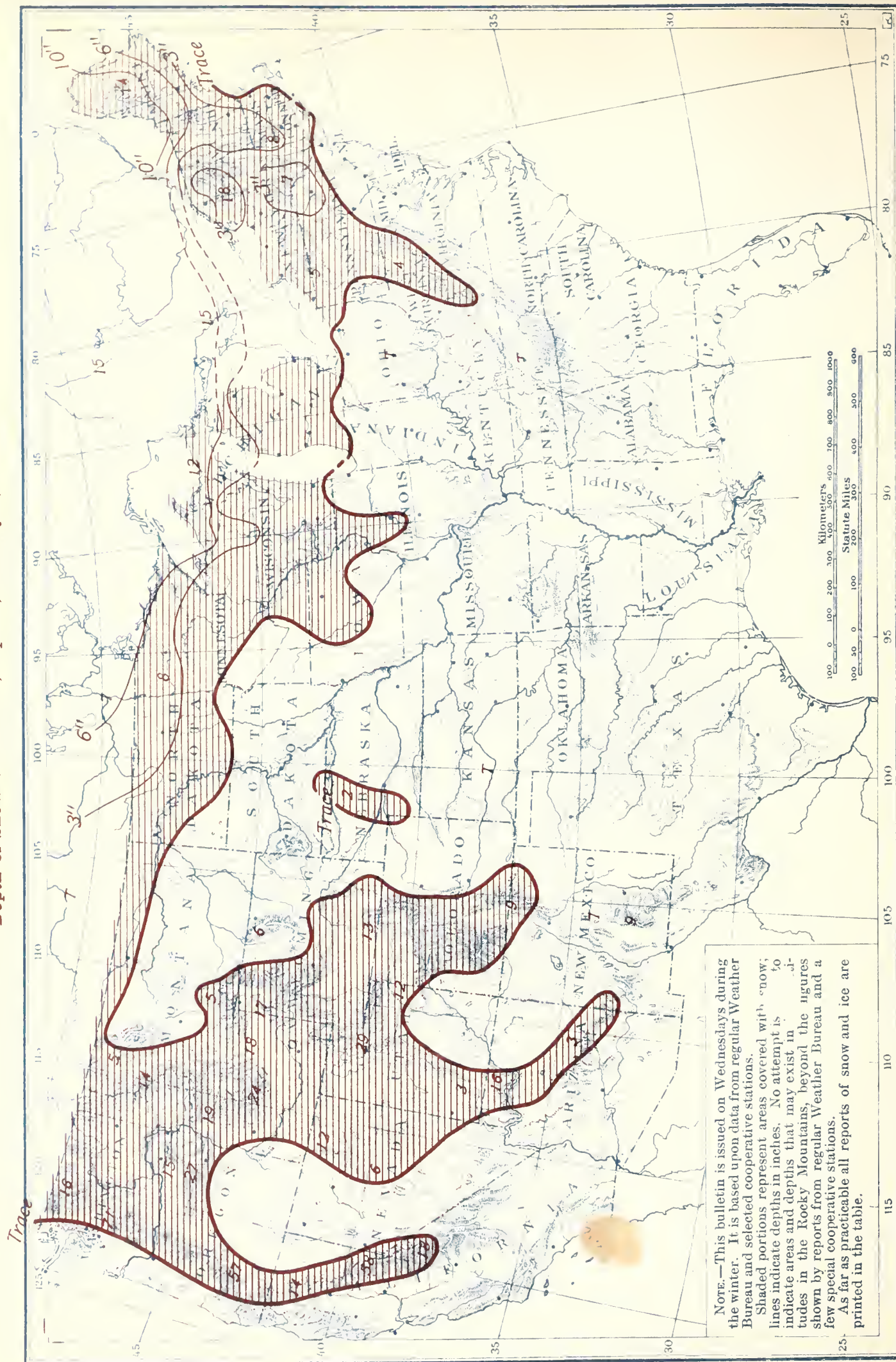
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., JANUARY 5, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Barrow	7	.....	Concord	4	6.0
Eagle	19	.....	Hanover	4	.....
Fairbanks	12	28.0	Keene	5	.....
Tanana	15	.....	Woodsville	5	.....
<i>Arizona</i>			<i>New Jersey</i>		
Bright Angel	16	.....	Newton	4	.....
Grand Canyon	4	.....	<i>New Mexico</i>		
Pinedale	3	.....	Corona	T.	.....
Williams	1	.....	Elizabethtown	9	.....
<i>California</i>			Fort Bayard	T.	.....
Blue Canyon	20	.....	<i>New York</i>		
Huntington Lake	18	.....	Binghamton	2	*
McCloud	14	.....	Buffalo	1	*
Soda Springs	58	.....	Jeffersonville	7	.....
<i>Colorado</i>			Lake Placid	6	.....
Pueblo	0	†	Lowville	9	.....
Rico	8	.....	Roxbury	3	.....
<i>Connecticut</i>			Saranac Lake	4	.....
Hartford	T.	*†	<i>North Dakota</i>		
<i>Idaho</i>			Williston	T.	14.0
Idaho City	22	.....	<i>Ohio</i>		
Kirkham	15	.....	Cleveland	0	*
Pierce City	24	.....	Columbus	T.	0.0
Shake Creek	24	.....	Cortland	T.	.....
Soldier Creek	18	.....	Toledo	T.	*
<i>Indiana</i>			<i>Oregon</i>		
Evansville	T.	0.0	Crater Lake	57	.....
Terre Haute	0	0.5	Fish Lake	14	.....
<i>Iowa</i>			Imperial Mine	27	.....
Davenport	T.	†	Siskiyou	9	.....
Dubuque	T.	8.5	Wallowa	4	.....
Forest City	1	.....	<i>Pennsylvania</i>		
Keokuk	0	5.0	Chambersburg	T.	.....
<i>Maine</i>			Confluence	1	.....
Farmington	8	.....	Erie	1	3.0
Gardiner	8	6.0	Harrisburg	0	5.0
Greenville	13	13.0	Towanda	4	.....
Houlton	10	.....	Warren	5	.....
Oldtown	9	.....	<i>South Dakota</i>		
<i>Maryland</i>			Huron	0	10.5
Oakland	2	.....	Pierre	0	12.5
<i>Massachusetts</i>			<i>Tennessee</i>		
Holyoke	7	8.0	Knoxville	T.	0.0
<i>Michigan</i>			<i>Utah</i>		
Alpena	2	1.0	Cedar City	3	.....
Bad Axe	1	.....	Duchesne	4	.....
Bessemer	11	.....	Manti	2	.....
Escanaba	4	2.5	Tooele	8	.....
Mackinaw	8	.....	<i>Vermont</i>		
Munising	12	.....	Brattleboro	4	7.5
Newberry	9	.....	St. Johnsbury	5	.....
Sault Ste. Marie	8	7.0	White River Junction	4	.....
<i>Minnesota</i>			<i>Washington</i>		
Collegeville	1	.....	Paradise Inn	71	.....
Duluth	T.	9.5	Snoqualmie Pass	59	.....
Ely	6	.....	Twisp	16	.....
Fort Ripley	2	.....	<i>West Virginia</i>		
Thief River Falls	8	.....	Bayard	4	.....
Virginia	3	.....	Elkins	1	0.0
<i>Montana</i>			Rowlesburg	2	.....
Haugan	14	.....	<i>Wisconsin</i>		
Red Lodge	1	.....	Green Bay	1	5.5
Thompson Falls	4	.....	Park Falls	2	.....
<i>Nebraska</i>			Rhineland	4	.....
Hyannis	2	.....	Wausau	7	2.5
Omaha	0	†	<i>Wyoming</i>		
<i>Nevada</i>			Alta	17	.....
Austin	6	.....	Casper	1	.....
McGill	1	.....	Dixon	13	.....
North Fork	12	.....	Foxpark	9	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

Depth of Snow on Ground, 8 p. m., January 5, 1931



SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief

No. 5

WASHINGTON, D. C., JANUARY 14, 1931

WINTER 1930-31

CLIMATOLOGICAL DIVISION OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED JANUARY 12

The vigorous storm which was crossing the Southeastern States on the 5th continued northeastward, its center advancing close to the coast line of the Middle Atlantic and New England States. During Monday night and Tuesday it caused considerable snowfall in the middle Appalachian region, the upper Ohio Valley, and the northeasternmost portion of the country, with heavy snows in northern New York and most of northern New England.

Comparatively unimportant snowfall occurred about the 8th in the southern Appalachian region in connection with a storm which took a course so far south that it caused no precipitation north of the Ohio, Kanawha, and James Rivers. Practically all this snow had melted by the morning of the 12th. There was some snowfall at various dates in the Lake region and in some higher portions of the far Northwest. Finally, on the 11th and 12th, a marked storm brought snow to the Lake region, the interior of the Middle Atlantic States, and the western part of New England.

DEPTH OF SNOW ON GROUND

The Adirondack region, most of Vermont, and the interior portions of New Hampshire and Maine have from 10 to 25 inches of snow, and about a foot now covers the greater part of upper Michigan. Yet, in general, the eastern two-thirds of the country has less snow than usual in January in the portions north of latitude 40° and scarcely any south of that parallel, save that a little is noted in the mountainous area of West Virginia and in south-central Indiana and part of southeastern Illinois. Most of northwestern Illinois and of the southern half of Iowa is now without a snow cover, while the western quarter of Nebraska and a considerable part of Montana are without snow.

West of the Divide the area now covered is apparently greater than a week ago, but no marked changes in depth are noted over most of the lower portions of the area, while several of the loftier stations report moderate decreases in depth, due probably to settling without material change of water content. A few elevated stations, chiefly in northeastern Oregon or southern Idaho, have gained several inches in depth during the last week.

ICE IN RIVERS AND HARBORS

The week was mainly mild for January in northern sections east of the Rocky Mountains, especially in the north-central portion, but a turn to colder struck the northern Plains at the close. In the central valleys and a few other areas there was some decrease or disappearance of ice. However, most ice-reporting stations indicate the same situation as last week, or a greater thickness. A few points in New York or New England report gains of 4 to 8 inches.

Rivers and lakes of New England and the northern Middle Atlantic States usually have ice, unless in the lower courses of the rivers. Harbors of the Great Lakes are generally encumbered by ice masses, or quite closed, except the most southern of them. The Ohio River, the lower Missouri, and the Mississippi from central Illinois southward are ice-free, but several tributaries of the Ohio are reported to have a little ice.

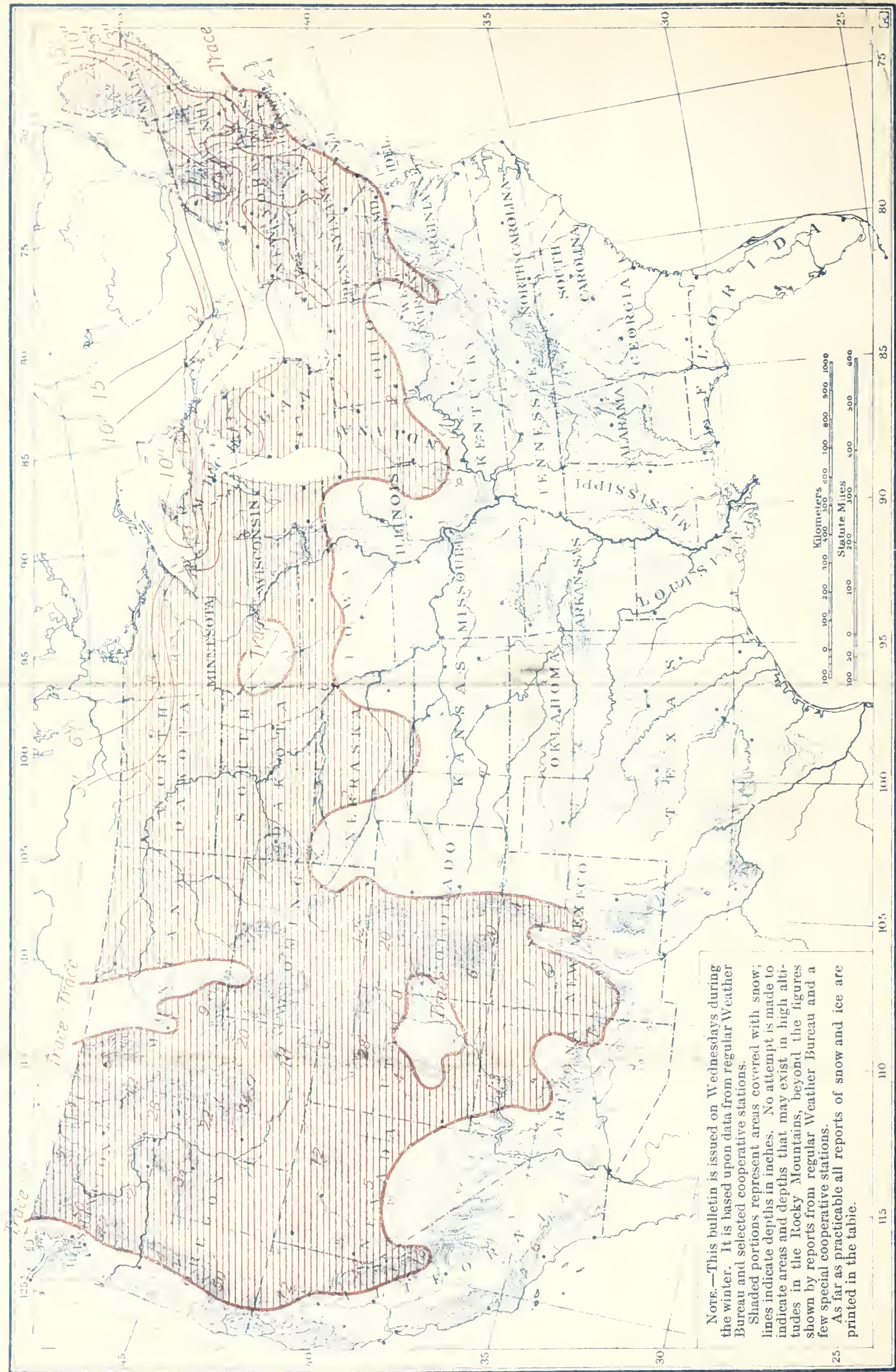
Harvesting of ice about 8 inches thick is reported from south-central New York. From the Rocky Mountains eastward there seems to have been less ice gathered than usually is secured by this date.

H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., JANUARY 12, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Bethel.....	7	.....	Concord.....	9	13.0
Eagle.....	21	.....	Durham.....	6	.....
Nome.....	8	.....	Lancaster.....	10	.....
<i>Arizona</i>			Pittsburg.....	17	.....
Bright Angel.....	13	.....	<i>New Mexico</i>		
Grand Canyon.....	3	.....	Aurora.....	4	.....
<i>California</i>			Las Vegas.....	T.	.....
Blue Canyon.....	14	.....	Taos.....	1	.....
Mount Wilson.....	6	.....	<i>New York</i>		
Relief.....	26	.....	Beaver River.....	18	.....
Soda Springs.....	48	.....	Binghamton.....	3	*
<i>Connecticut</i>			Herkimer.....	6	.....
Hartford.....	3	8.0	Malone.....	14	.....
West Cornwall.....	8	.....	Old Forge.....	23	.....
<i>Delaware</i>			Oswego.....	6	4.5
Wilmington.....	2	.....	Plattsburg.....	22	.....
<i>Idaho</i>			Rochester.....	4	3.0
Big Creek.....	14	.....	Saranac Lake.....	15	.....
Hailey.....	11	.....	Watertown.....	7	.....
McCall.....	22	.....	<i>North Dakota</i>		
Spencer.....	20	.....	Bismarck.....	2	21.0
Vienna Mine.....	34	.....	Williston.....	T.	15.0
<i>Illinois</i>			<i>Ohio</i>		
Peoria.....	0	2.5	Charlestown.....	3	.....
Windsor.....	1	.....	Millersburg.....	2	.....
<i>Indiana</i>			Sandusky.....	T.	6.0
Cambridge City.....	2	.....	Toledo.....	T.	1.0
<i>Iowa</i>			<i>Oregon</i>		
Des Moines.....	T.	11.5	Austin.....	31	.....
Dubuque.....	T.	8.5	Baker.....	2	.....
Sioux City.....	T.	*†	Government Camp.....	41	.....
<i>Maine</i>			Meacham.....	14	.....
Gardiner.....	12	8.0	Olive Lake.....	26	.....
Greenville.....	19	12.0	<i>Pennsylvania</i>		
Millinocket.....	24	.....	Beaver Falls.....	2	.....
Portland.....	2	0.0	Erie.....	1	4.0
<i>Massachusetts</i>			Gordon.....	4	.....
Amherst.....	2	.....	Harrisburg.....	1	6.0
Holyoke.....	3	8.0	Pittsburgh.....	T.	*
Williamstown.....	2	.....	Reading.....	T.	0.0
<i>Michigan</i>			West Chester.....	2	.....
Alpena.....	4	3.0	Williamsport.....	2	.....
Ann Arbor.....	2	.....	<i>South Dakota</i>		
Battle Creek.....	1	.....	Huron.....	T.	10.5
Cadillac.....	5	.....	Yankton.....	T.	‡
Elmira.....	13	.....	<i>Utah</i>		
Escanaba.....	3	5.5	Deseret.....	4	.....
Houghton.....	10	8.0	Logan.....	6	.....
Munising.....	12	.....	Ogden.....	7	.....
Port Huron.....	5	8.0	Silver Lake.....	28	.....
Sidnaw.....	10	.....	Watson.....	9	.....
<i>Minnesota</i>			<i>Vermont</i>		
Baudette.....	4	.....	Brattleboro.....	9	9.0
Duluth.....	T.	10.5	Rutland.....	4	.....
Grand Meadow.....	1	.....	St. Johnsbury.....	12	.....
Moorhead.....	1	20.0	<i>Washington</i>		
St. Paul.....	T.	*	Chesaw.....	7	.....
Thief River Falls.....	8	.....	Twisp.....	12	.....
<i>Montana</i>			Yakima.....	2	.....
Bozeman.....	9	.....	<i>West Virginia</i>		
Grant.....	2	.....	Elkins.....	T.	0.0
Missoula.....	4	.....	Hinton.....	T.	.....
Red Lodge.....	1	.....	<i>Wisconsin</i>		
<i>Nebraska</i>			Fond du Lac.....	2	.....
Imperial.....	T.	.....	Green Bay.....	1	5.5
Omaha.....	0	†	Medford.....	3	.....
<i>Nevada</i>			Wausau.....	6	5.5
Arthur.....	6	.....	<i>Wyoming</i>		
Eureka.....	3	.....	Dome Lake.....	7	.....
Minden.....	3	.....	Evanston.....	4	.....

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable.
T. indicates trace.



SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU

CHARLES F. MARVIN, Chief

No. 6

WASHINGTON, D. C., JANUARY 21, 1931

WINTER 1930-31

CLIMATOLOGICAL DIVISION

OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED JANUARY 19

The low-pressure area noted in last week's BULLETIN as bringing snowfall to the Lake region and some districts further eastward on the 11th and 12th, continued its course to the Gulf of St. Lawrence by the 14th and caused considerable snowfall after the evening of the 12th in northern New England. There were light to moderate falls in portions of the central valleys and the southern Appalachian region on or about the 14th, but this snow almost entirely melted before the 19th.

On the 16th a storm reached the vicinity of Puget Sound, whence it traveled southeastward to the southern Plains by the end of the 17th, then moved northeastward to the vicinity of Lake Ontario by the evening of the 19th. Another storm advanced northeastward close to the Atlantic coast during the 18th and 19th. The storm first mentioned brought snowfall to much of the far Northwest and the middle Rocky Mountain area about the 17th, then on the 18th and 19th considerable snow fell from eastern Nebraska to New England in connection with one or the other of these storms.

DEPTH OF SNOW ON GROUND

The northeastern part of the country and the northern part of the upper Lake region now have a fairly deep cover of snow, while from southwestern New York southward to the mountains of the Virginias, in the southern Lake region, in the upper Mississippi Valley, and over the Missouri Valley as far southeast as northwestern Missouri the ground is almost all covered, but nearly always only scantily.

In the southern Plateau region there has been a decrease in the snow-covered area, while generally in the West the northern mountains and the middle Rockies have added to the depths, but high mountains to the southward have less snow than a week ago.

The most notable shifting of the southern limit of the snow-covered area during the past week has been in Ohio and Indiana where it receded to northward nearly or quite 100 miles, and from central Illinois to eastern Nebraska where it moved southward from 100 to 150 miles. In an area including eastern Iowa and adjacent parts of Minnesota and Wisconsin, where last week the ground was bare or lightly covered, the depth now varies from 6 to 10 inches.

ICE IN RIVERS AND HARBORS

From the northern Rocky Mountains eastward to the lower Lakes the week averaged warmer than normal. As a result there was no notable increase in the ice thickness, although a few stations in the upper Lake region report gains of from 2 to 5 inches. Scarcely any stations, however, report a decrease or disappearance of the ice noted a week ago.

The Missouri River continues to have ice over a great part of its course, and the Mississippi over its northern portion, but the Ohio has apparently no ice, though a few tributaries, especially the easternmost, are largely frozen over.

The Hudson River is mainly ice-bound, and in the lower Connecticut River navigation ceased on the 15th.

The harvesting of natural ice has now been at least started in practically every State where considerable amounts are customarily gathered, from Maine to the far Northwest; and in a few States a great part of the task is now completed. In Wisconsin, however, some ice cutters are still holding off, the prolonged mildness having prevented the formation of ice sufficiently thick.

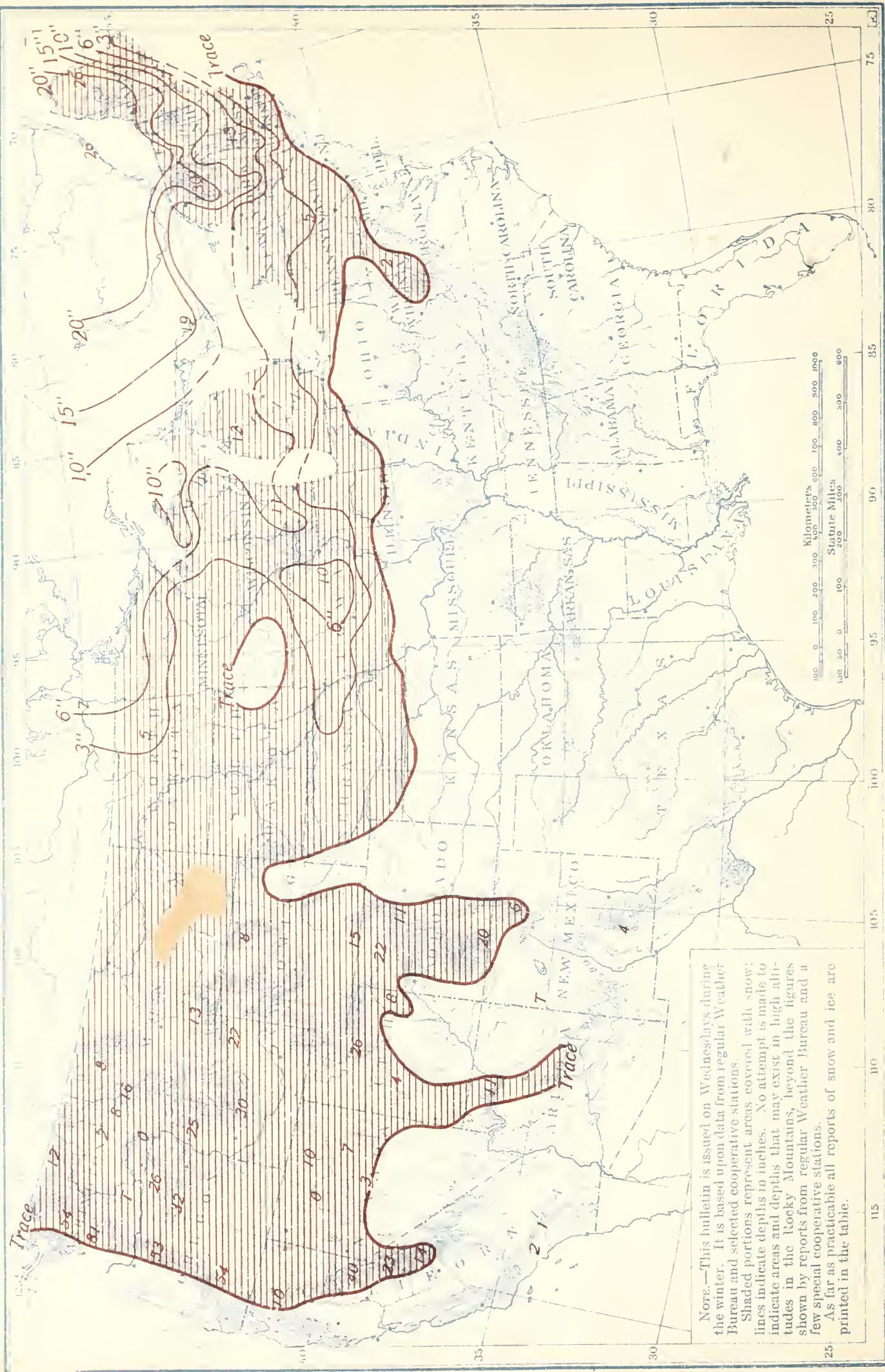
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., JANUARY 19, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Fairbanks	12	27.0	Berlin	10	.....
Fort Yukon	15	.....	Concord	12	14.0
<i>Arizona</i>			Keene	7	.....
Flagstaff	T.	.....	<i>New Jersey</i>		
Pinedale	T.	.....	Elizabeth	T.	.....
<i>California</i>			Newton	1	.....
McCloud	10	.....	<i>New Mexico</i>		
Macumber	5	.....	Chama	1	.....
Sierraville	10	.....	Cloudercroft	4	.....
<i>Colorado</i>			Elizabethtown	4	.....
Cumbres	20	.....	<i>New York</i>		
Dillon	11	.....	Albany	9	3.5
Steamboat Springs	22	.....	Alfred	6	.....
<i>Connecticut</i>			Binghamton	4	*
New Haven	T.	0.0	Buffalo	3	*
<i>District of Columbia</i>			Dansville	1	.....
Washington	0	†	Fredonia	4	.....
<i>Idaho</i>			Glens Falls	10	.....
Idaho City	21	.....	Lake Placid	21	.....
Kellogg	8	.....	Oswego	10	6.0
Mascot Mine	15	.....	Rochester	4	6.0
Montpelier	8	.....	Saratoga Springs	12	.....
<i>Illinois</i>			<i>North Dakota</i>		
La Salle	3	.....	Bismarck	1	21.0
Pontiac	T.	.....	<i>Ohio</i>		
<i>Indiana</i>			Charlestown	T.	.....
Notre Dame	1	.....	Cleveland	T.	*
Terre Haute	0	*	Sandusky	T.	7.0
Whiting	1	.....	<i>Oregon</i>		
<i>Iowa</i>			Crater Lake	54	.....
Albia	3	.....	Government Camp	53	.....
Carroll	3	.....	Wallowa	8	.....
Davenport	2	2.0	<i>Pennsylvania</i>		
Des Moines	6	12.0	Emporium	2	.....
Marshalltown	7	.....	Freeland	5	.....
Waterloo	10	.....	Gettysburg	T.	.....
<i>Maine</i>			Pittsburgh	T.	0.0
Eastport	10	0.0	State College	3	.....
Farmington	17	.....	Towanda	5	.....
Greenville	24	12.0	Warren	2	.....
Oldtown	13	.....	<i>Rhode Island</i>		
Van Buren	20	.....	Providence	1	0.0
<i>Massachusetts</i>			<i>South Dakota</i>		
Boston	T.	0.0	Pierre	2	14.0
Concord	5	.....	Yankton	T.	12.0
<i>Michigan</i>			<i>Utah</i>		
Bad Axe	6	.....	Cedar City	1	.....
Benzonia	7	.....	Deseret	4	.....
Bloomington	3	.....	Milford	1	.....
Detroit	2	†	<i>Vermont</i>		
Iron River	7	.....	Bellows Falls	7	.....
Port Huron	8	8.5	Brattleboro	13	11.0
<i>Minnesota</i>			Burlington	24	*
Ely	8	.....	Northfield	19	.....
Leech Lake Dam	4	.....	<i>Washington</i>		
Roseau	6	.....	Paradise Inn	81	.....
<i>Missouri</i>			Snoqualmie Pass	54	.....
Hannibal	0	*	<i>West Virginia</i>		
Maryville	1	.....	Elkins	1	0.0
<i>Montana</i>			<i>Wisconsin</i>		
Billings	2	.....	Brodhead	6	.....
Dillon	2	.....	Green Bay	5	6.0
Haugan	16	.....	La Crosse	7	8.0
Stanford	6	.....	Racine	2	.....
<i>Nebraska</i>			Stevens Point	4	.....
Broken Bow	2	.....	Wausau	5	7.5
O'Neill	4	.....	<i>Wyoming</i>		
<i>Nevada</i>			Alta	22	.....
Austin	3	.....	Barnum	2	.....
North Fork	10	.....	Foxpark	9	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

Depth of Snow on Ground, 8 p. m., January 19, 1931



Note.—This bulletin is issued on Wednesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations. Shaded portions represent areas covered with snow; lines indicate depths in inches. No attempt is made to indicate areas and depths that may exist in high altitudes in the Rocky Mountains, beyond the figures shown by reports from regular Weather Bureau and a few special cooperative stations. As far as practicable all reports of snow and ice are printed in the table.

SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief

No. 7

WASHINGTON, D. C., JANUARY 28, 1931

WINTER 1930-31

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED JANUARY 26

The snowfall occurring on the 19th in portions of the Lake region and the Northeast continued in many of those districts on the 20th and 21st, in connection with the storm centers mentioned in the last issue and with another storm from western Canada which advanced southeastward rapidly. After the 21st no snowfall of consequence was noted east of the Continental Divide, and in this portion of the country increases in depth since the 19th are seldom noted save in upper Michigan, northern lower Michigan, and the interior parts of New York and New England.

About the 22d to 24th the elevated portions of Washington, Oregon, Idaho, and Utah received moderate snowfall, in connection with the eastward movement of a storm central in southwestern Canada.

The mild weather during most of the week between the Rocky and Appalachian Mountains caused melting of much snow, and settling at most points where the snow did not entirely disappear.

DEPTH OF SNOW ON GROUND

Deep snow continues to cover northern New England and the Adirondack district, and moderate depths are still to be found in the northern two-thirds of Michigan. The southernmost portions of New England, New York, and Pennsylvania are now mainly bare, and all but the most mountainous parts of New Jersey, Maryland, and the Virginias.

Ohio, Indiana, Illinois, southern and western Iowa, much of Minnesota, and practically all of the Plains south of North Dakota are bare; likewise much of Montana and the eastern parts of Wyoming and Colorado.

In the southern and central Plateau regions a considerable area that was covered a week ago is now without snow, and decreased depths are noted at nearly all points reporting in the California mountains.

The greatest change in snow conditions during the past week has been in the Missouri Valley. Whereas, last week snow was to be found as far southeast as the northwestern portion of Missouri, the ground is now bare at practically every station in the valley below south-central North Dakota.

The greatest depth reported this week is 97 inches in the mountains of Washington, while east of the Divide the most is 39 inches in the Adirondack section.

ICE IN RIVERS AND HARBORS

The ice situation was not greatly changed during the week, save from northern Illinois across Iowa to the northern Plains and the northern foothills of the Rockies where decreases were noted, with some ice breaking up, owing to the unseasonable mildness.

The northern portion of the upper Lake region and the majority of the stations in New York and New England reported slight to considerable increases in the thickness of the ice.

The greater part of the Hudson River is ice-bound, and substantially all New England rivers. Nearly all Great Lakes harbors have some ice, though several have but little.

The thickness of 19 inches in the Missouri River at Williston, N. Dak., and the measure of 16 inches at the western end of Lake Superior, at Duluth, Minn., are small amounts to be recorded there at this date; thicknesses from 6 to 18 inches greater are more often encountered in late January.

The harvesting of ice in Montana was largely stopped by the softening of the ice because of high temperatures. From the upper Mississippi Valley eastward nearly all of the northernmost States report progress in harvesting during the week. In New York the ice that has been gathered is of good quality.

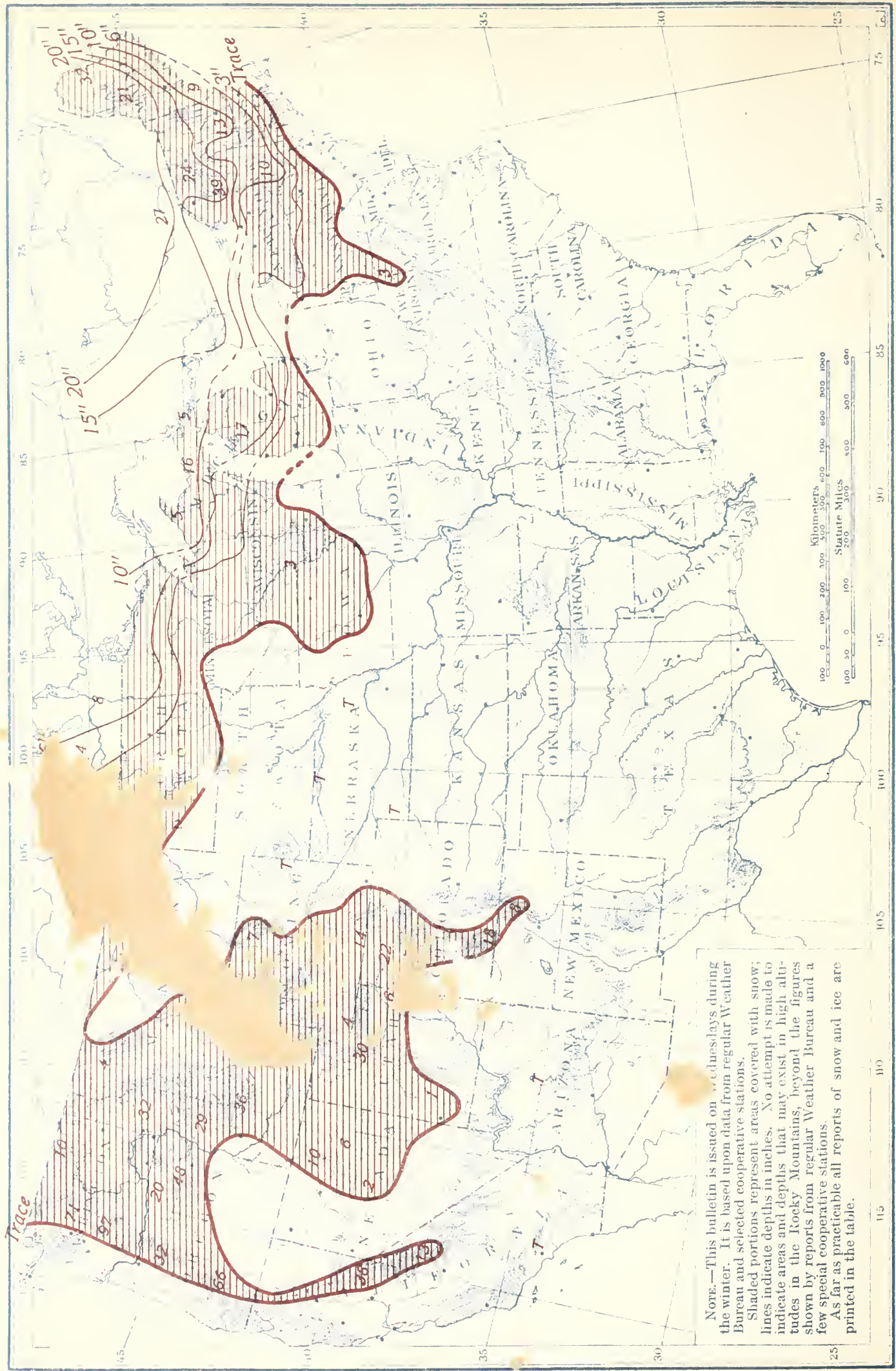
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., JANUARY 26, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>California</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Blue Canyon	6	.....	Hanover	14	.....
Huntington Lake	13	.....	Littleton	14	.....
Macumber	2	.....	Lancaster	14	.....
Soda Springs	38	.....	Woodsville	16	.....
Yosemite	T.	.....	<i>New Mexico</i>		
<i>Colorado</i>			Aurora	8	.....
Crested Butte	7	.....	Elizabethtown	4	.....
Cumbres	18	.....	<i>New York</i>		
Dillon	12	.....	Albany	6	6.0
Pueblo	0	*	Buffalo	1	3.5
Steamboat Springs	22	.....	Canton	12	.....
<i>Connecticut</i>			Jamestown	4	.....
Hartford	1	9.0	Malone	14	.....
<i>Idaho</i>			Ogdensburg	6	.....
Hailey	13	.....	Syracuse	4	.....
Ketchum	14	.....	Watertown	12	.....
Kirkham	22	.....	<i>North Dakota</i>		
McCall	29	.....	Devils Lake	3	.....
Mackay	6	.....	Ellendale	T.	.....
Pierce City	32	.....	Williston	T.	19.0
Pocatello	3	.....	<i>Ohio</i>		
Porthill	4	.....	Cleveland	0	†
Soldier Creek	21	.....	Sandusky	0	6.0
Spencer	22	.....	<i>Oregon</i>		
Vienna Mine	36	.....	Baker	1	.....
<i>Illinois</i>			Fish Lake	11	.....
Peoria	0	*†	Imperial Mine	48	.....
<i>Iowa</i>			Meacham	20	.....
Des Moines	0	4.0	Olive Lake	30	.....
Dubuque	T.	11.0	<i>Pennsylvania</i>		
Iowa City	2	.....	Bellefonte	T.	.....
Iowa Falls	2	.....	Franklin	1	.....
Pocahontas	T.	.....	Freeland	5	.....
<i>Maine</i>			Gordon	1	.....
Gardiner	18	13.0	Williamsport	2	.....
Greenville	21	21.0	<i>Rhode Island</i>		
Houlton	32	.....	Providence	T.	0.0
Millinocket	27	.....	<i>South Dakota</i>		
<i>Massachusetts</i>			Huron	0	12.0
Amherst	6	.....	Pierre	0	14.0
Holyoke	10	12.0	<i>Utah</i>		
Williamstown	8	.....	Duchesne	3	.....
<i>Michigan</i>			Manti	1	.....
Bessemer	16	.....	Milford	1	.....
Cadillac	6	.....	Modena	T.	.....
Detroit	0	†	Price	6	.....
East Jordan	8	.....	Salt Lake City	10	.....
Houghton	5	9.5	Tooele	6	.....
Mackinaw	10	.....	Watson	6	.....
Mount Pleasant	7	.....	<i>Vermont</i>		
Sault Ste. Marie	5	13.0	Bellows Falls	9	.....
Sidnaw	13	.....	Brattleboro	13	12.5
<i>Minnesota</i>			Burlington	17	*
Baudette	7	.....	Rutland	8	.....
Duluth	1	16.0	White River Junction	13	.....
Moorhead	T.	23.5	<i>Washington</i>		
Roseau	7	.....	Paradise Inn	97	.....
St. Paul	0	*	Twisp	19	.....
Thief River Falls	8	.....	<i>West Virginia</i>		
<i>Montana</i>			Elkins	T.	0.0
Grant	3	.....	Rowlesburg	3	.....
Kalispell	4	.....	<i>Wisconsin</i>		
Loweth	6	.....	Eau Claire	2	.....
Thompson Falls	1	.....	La Crosse	3	9.0
<i>Nebraska</i>			Medford	3	.....
Hyannis	1	.....	<i>Wyoming</i>		
<i>Nevada</i>			Dixon	14	.....
Arthur	6	.....	Evanston	4	.....
Eureka	2	.....	South Pass City	2	.....
North Fork	10	.....	Yellowstone Park	10	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

Depth of Snow on Ground, 8 p. m., January 26, 1931



SNOW AND ICE BULLETIN FEB 4 1931

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief

No. 8

WASHINGTON, D. C., FEBRUARY 4, 1931

WINTER 1930-31

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED FEBRUARY 2

A succession of swiftly moving storms advanced eastward or southeastward from the vicinity of Manitoba, their centers being located usually near the northern boundary of the United States. Several of these were of not more than moderate strength, yet snowfall occurred in connection with each, but often only a small quantity.

The most important storm, however, which was over upper Michigan on the morning of the 30th and near the Massachusetts coast 24 hours later, caused considerable snowfall over the northern and eastern portions of the Lake region and much of the Middle Atlantic States and New England, the storm becoming comparatively intense as it progressed.

In the mountains of the far West a little snow fell, chiefly in the extreme Northwest early in the week, and from California eastward about the 30th to the 1st.

This week the temperature once more was unseasonably high from the northern Rocky Mountains eastward to the upper Lake region, and in this strip wherever snow was present a week ago it usually disappeared or decreased in depth, though increased depths were the rule in northern and central Michigan.

DEPTH OF SNOW ON GROUND

New England is now covered with snow in all portions, and only in the southernmost portions is the depth less than 5 inches. In New York only a small portion near the coast is free from snow, and there has been a decided increase in the depths over the Adirondack section and near Lake Ontario.

In Pennsylvania about the same area as last week is covered, but near and east of the Susquehanna River the depths are usually less. To westward almost to the Mississippi River there has been no special change in the snow-covered area during the past week.

The portion of Iowa covered last week is now practically all bare; likewise much of western Wisconsin, southern Minnesota, and central and western North Dakota.

Of the higher stations of the Cascade and Sierra sections, there are scarcely any but what report less than a week ago.

ICE IN RIVERS AND HARBORS

While temperatures in New York and New England were low enough to result in moderate increases in ice thickness at nearly all points of measurement, yet in most of the Middle Atlantic States and the Lake region there is now less ice than a week ago.

In the Missouri and upper Mississippi Rivers practically all stations note a decrease in amount of ice, and at a few points the ice, which had been solid for several weeks, broke up under the influence of the warm weather.

At Bismarck, N. Dak., the Missouri River ice is still 20 inches thick, while 9-inch ice remains at a few places on the upper Mississippi River.

Several places in interior of New England report ice more than a foot in thickness.

The tributaries of the upper Ohio River now have no ice of consequence, save the upper part of the Allegheny River. The Hudson and Mohawk Rivers have less than a foot, on the average, but cutting has begun on the former, near Albany.

Ice-cutting in Wisconsin has made some progress this week, but in North Dakota softening of the ice stopped the harvesting.

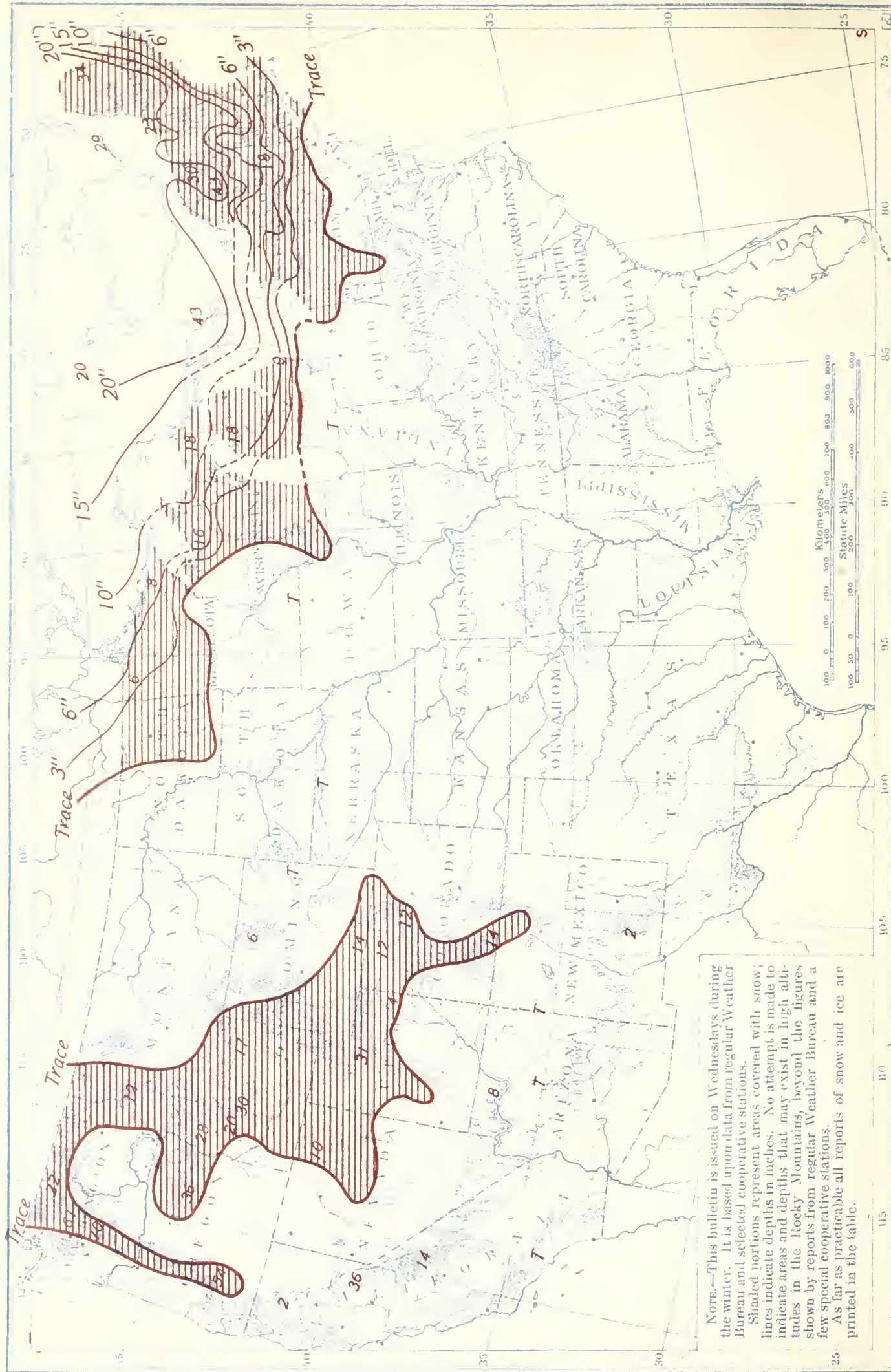
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., FEBRUARY 2, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Barrow.....	6	.....	Berlin.....	15	.....
Bethel.....	8	.....	Concord.....	16	18.0
Eagle.....	26	.....	Keene.....	15	.....
Nome.....	7	.....	Pittsburg.....	23	.....
Tanana.....	9	.....	<i>New Jersey</i>		
<i>Arizona</i>			Newton.....	T.	.....
Bright Angel.....	8	.....	<i>New Mexico</i>		
Flagstaff.....	T.	.....	Chacon.....	1	.....
Grand Canyon.....	T.	.....	Cloudcroft.....	2	.....
<i>California</i>			Elizabethtown.....	6	.....
Blue Canyon.....	2	.....	<i>New York</i>		
Huntington Lake.....	14	.....	Albany.....	8	8.0
McCloud.....	2	.....	Alfred.....	6	.....
Soda Springs.....	36	.....	Binghamton.....	5	*
<i>Colorado</i>			Dansville.....	3	.....
Crested Butte.....	4	.....	Glens Falls.....	18	.....
Cumbres.....	14	.....	Herkimer.....	14	.....
Steamboat Springs.....	12	.....	Ithaca.....	6	.....
<i>Connecticut</i>			Jamestown.....	25	.....
Hartford.....	5	9.0	Lowville.....	24	.....
<i>Idaho</i>			Norwich.....	16	.....
Big Creek.....	13	.....	Old Forge.....	43	.....
Idaho City.....	20	.....	Oswego.....	22	10.5
Kellogg.....	3	.....	Rochester.....	11	8.5
Montpelier.....	3	.....	Saranac Lake.....	30	.....
Shake Creek.....	14	.....	<i>North Dakota</i>		
<i>Illinois</i>			Bismarck.....	0	20.0
Peoria.....	0	*	Devils Lake.....	1	.....
<i>Iowa</i>			Ellendale.....	T.	.....
Davenport.....	0	*	<i>Oregon</i>		
Des Moines.....	0	|| 4.5	Austin.....	36	.....
Sioux City.....	0	*†	Crater Lake.....	54	.....
<i>Maine</i>			Meacham.....	16	.....
Eastport.....	2	0.0	Wallowa.....	6	.....
Farmington.....	22	.....	<i>Pennsylvania</i>		
Gardiner.....	20	15.0	Franklin.....	1	.....
Houlton.....	34	.....	Harrisburg.....	0	4.5
Portland.....	10	0.0	Meadville.....	2	.....
Van Buren.....	24	.....	Warren.....	1	.....
<i>Massachusetts</i>			<i>Rhode Island</i>		
Boston.....	7	.....	Providence.....	5	0.0
Concord.....	11	.....	<i>South Dakota</i>		
Holyoke.....	20	13.0	Yankton.....	0	†
Nantucket.....	2	0.5	<i>Utah</i>		
Williamstown.....	8	.....	Logan.....	9	.....
<i>Michigan</i>			Ogden.....	10	.....
Alpena.....	4	†	Provo.....	6	.....
Benzonia.....	8	.....	Silver Lake.....	31	.....
Elmira.....	18	.....	<i>Vermont</i>		
Iron Mountain.....	3	.....	Brattleboro.....	17	15.0
Iron River.....	11	.....	Burlington.....	10	*
Marquette.....	15	0.0	St. Johnsbury.....	20	.....
Munising.....	16	.....	White River Junction.....	13	.....
Newberry.....	18	.....	<i>Washington</i>		
Port Huron.....	9	10.0	Chesaw.....	7	.....
<i>Minnesota</i>			Snoqualmie Pass.....	61	.....
Ely.....	8	.....	Twisp.....	22	.....
Leech Lake Dam.....	3	.....	<i>Wisconsin</i>		
Moorhead.....	T.	18.0	Ashland.....	1	.....
Virginia.....	3	.....	Green Bay.....	1	6.0
<i>Montana</i>			La Crosse.....	0	9.0
Grant.....	2	.....	Rhineland.....	1	.....
Haugan.....	12	.....	Wausau.....	1	8.0
Kalispell.....	3	.....	<i>Wyoming</i>		
<i>Nevada</i>			Alta.....	15	.....
Arthur.....	2	.....	Cheyenne.....	T.	.....
Austin.....	T.	.....	Dixon.....	14	.....
Eureka.....	T.	.....	Dome Lake.....	6	.....
McGill.....	T.	.....	Evanston.....	4	.....
North Fork.....	10	.....	Foxpark.....	9	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace. || Ice at Des Moines last week, 11.0.

Depth of Snow on Ground, 8 p. m., February 2, 1931



SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief

No. 9

WASHINGTON, D. C., FEBRUARY 11, 1931

WINTER 1930-31

CLIMATOLOGICAL DIVISION OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED FEBRUARY 9

During the first half of the week precipitation occurred over most portions of the far West, but it was largely rain. However, several stations, nearly all of them at considerable elevations, report slight increases in their snow depths.

From North Dakota eastward and southeastward to the coast of New England and the eastern limits of the mountains of the Middle Atlantic States, snow fell during the closing third of the week. This snowfall was chiefly in connection with the eastward movement of two storms of only moderate strength whose centers took more southerly courses than the majority of storms that had affected the weather during the two weeks preceding.

Mild weather caused melting or settling of the snow that was present a week ago in some portions of the Lake region; also in both the northern and the extreme southeastern portions of New England.

DEPTH OF SNOW ON GROUND

Deep snow covers nearly all of New England and a considerable part of New York; also portions of Michigan. In New Jersey almost half the State is now covered and in Pennsylvania all but the extreme southeastern part. Much of West Virginia has a light cover; likewise eastern Kentucky and eastern and south-central Ohio.

Northern Illinois and northwestern Indiana report a very little snow, while considerable areas in Minnesota, North Dakota, Wyoming, and eastern Montana, which were bare a week ago, have acquired a light cover.

Practically all the lower Ohio Valley, the Plains, save in North Dakota, and much of the upper Mississippi Valley continue without snow.

There are a few places in the mountains of Oregon and Washington where the snow is now reported as more than 40 inches deep, but, on the other hand, no places in the Rocky Mountain States heard from this week have depths as great as 20 inches.

Snow persists at Salt Lake City, Utah, where the depth is now 6 inches, but, outside of northern Utah, places in the far West south of the 45th parallel of latitude and at elevations less than 5,000 feet are almost invariably without snow at present. From western New Mexico to southern California the absence of snow at present up to considerably greater altitudes is noteworthy. Even in Washington and Idaho the snow stored at high levels so far this season is disappointingly small.

ICE IN RIVERS AND HARBORS

No marked change occurred during the week in the ice situation. In the northeastern portion, where the temperatures were mainly below normal, slight increases in thickness were noted; also locally as far west as the harbors of Lake Superior.

In general, the week was mild between the Rocky and Appalachian Mountains, with some resulting decrease of thickness or breaking up of ice from the Dakotas southeastward to Illinois. At Clinton, Iowa, the Mississippi River ice moved out on the 30th of January, far earlier than ever before within the last 15 years.

The latter part of the week brought lower temperatures in the Central States along the Canadian border, permitting resumption of the ice harvest in North Dakota. This work is now well advanced in most portions of Wisconsin and New York and has been completed in Minnesota.

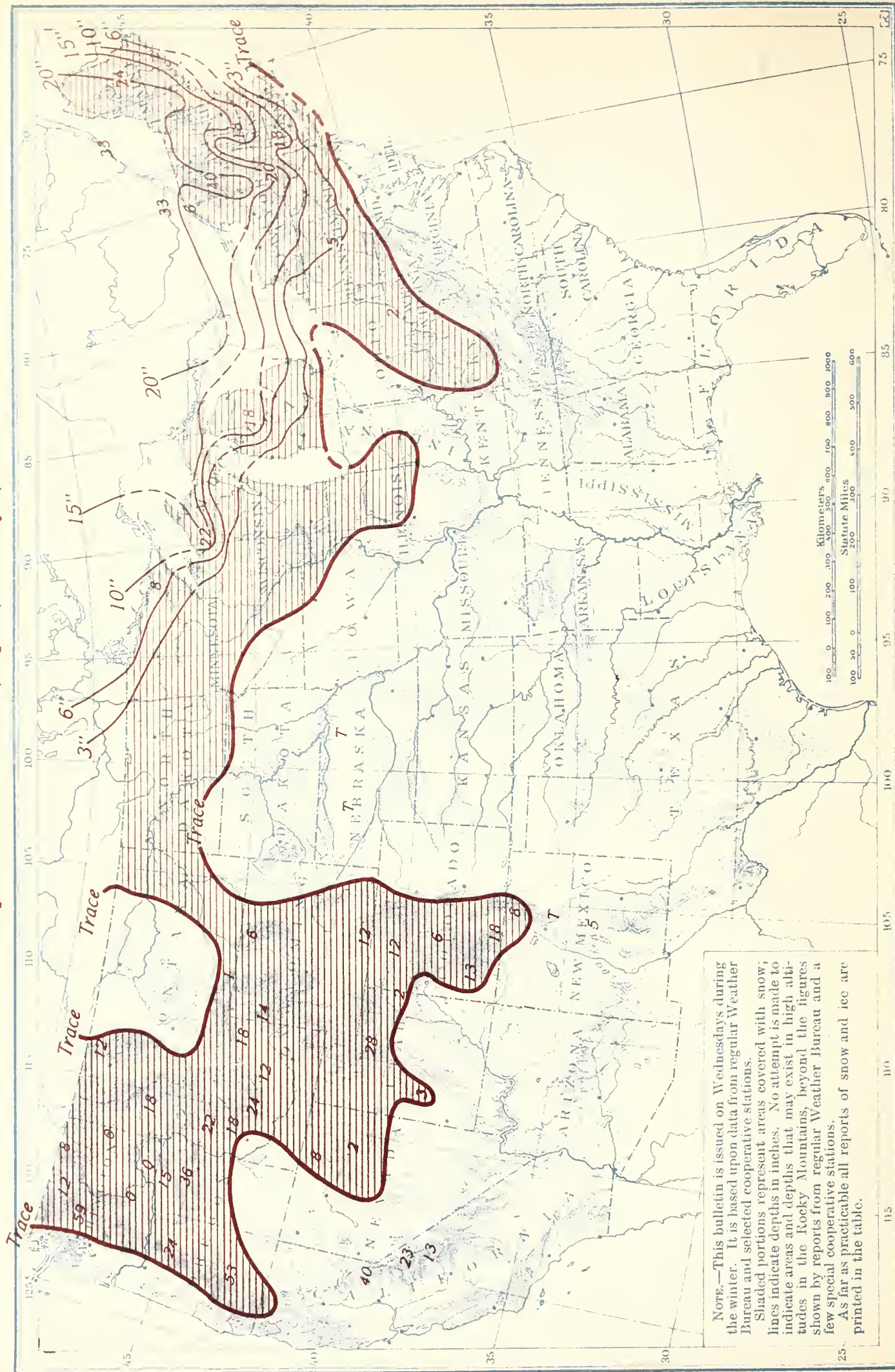
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., FEBRUARY 9, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Eagle	24	.....	Concord	18	18.0
Fort Yukon	11	.....	Hanover	16	.....
Nome	10	.....	Littleton	15	.....
<i>California</i>			Woodsville	16	.....
Huntington Lake	13	.....	<i>New Jersey</i>		
Relief	23	.....	Elizabeth	2	.....
<i>Colorado</i>			Phillipsburg	2	.....
Crested Butte	6	.....	Somerville	2	.....
Rico	13	.....	<i>New Mexico</i>		
<i>Connecticut</i>			Corona	5	.....
Hartford	6	10.0	Elizabethtown	8	.....
New Haven	4	0.0	<i>New York</i>		
West Cornwall	18	.....	Buffalo	7	5.0
<i>Idaho</i>			Canton	16	.....
Hailey	11	.....	Malone	14	.....
Ketchum	12	.....	New York	1	0.0
Kirkham	15	.....	Ogdensburg	6	.....
McCall	22	.....	Plattsburg	24	.....
Mascot Mine	12	.....	Roxbury	20	.....
Pierce City	18	.....	Saratoga Springs	14	.....
Soldier Creek	15	.....	Watertown	12	.....
Vienna Mine	24	.....	<i>North Dakota</i>		
<i>Illinois</i>			Ellendale	1	.....
Peoria	T.	0.0	Williston	1	17.5
<i>Iowa</i>			<i>Ohio</i>		
Dubuque	T.	8.0	Beverly	2	.....
<i>Kentucky</i>			Dover	2	.....
Maysville	1	.....	Millport	2	.....
Mount Sterling	1	.....	<i>Oregon</i>		
<i>Maine</i>			Crater Lake	53	.....
Eastport	4	0.0	Fish Lake	7	.....
Farmington	23	.....	Government Camp	24	.....
Gardiner	23	17.0	Imperial Mine	36	.....
Greenville	23	25.0	<i>Pennsylvania</i>		
Millinocket	24	.....	Bellefonte	5	.....
<i>Maryland</i>			Freeland	6	.....
Oakland	1	.....	Gordon	5	.....
<i>Massachusetts</i>			Harrisburg	1	8.0
Amherst	5	.....	Huntingdon	4	.....
Boston	2	.....	Mifflintown	4	.....
Concord	11	.....	Scranton	6	.....
Holyoke	18	14.0	Towanda	6	.....
Williamstown	12	.....	Williamsport	4	.....
<i>Michigan</i>			<i>Rhode Island</i>		
Bessemer	22	.....	Kingston	2	.....
Detroit	1	0.0	<i>South Dakota</i>		
East Jordan	8	.....	Pierre	0	9.0
Escanaba	5	12.0	<i>Utah</i>		
Grand Rapids	2	.....	Duchesne	2	.....
Grayling	18	.....	Milford	3	.....
Houghton	8	11.0	Tooele	3	.....
Mackinaw	12	.....	<i>Vermont</i>		
Mount Pleasant	6	.....	Brattleboro	18	16.0
Saginaw	3	.....	Northfield	15	.....
Sault Ste. Marie	13	13.5	Rutland	10	.....
<i>Minnesota</i>			<i>Washington</i>		
Collegeville	3	.....	Chesaw	8	.....
Duluth	2	17.0	Snoqualmie Pass	59	.....
Fort Ripley	4	.....	<i>West Virginia</i>		
Grand Meadow	1	.....	Elkins	1	0.0
Moorhead	1	17.0	Wheeling	2	.....
Roseau	6	.....	<i>Wisconsin</i>		
St. Paul	1	*	Ashland	3	.....
<i>Montana</i>			Brodhead	2	.....
Belton	12	.....	Park Falls	4	.....
Kalispell	1	.....	Racine	2	.....
Red Lodge	1	.....	Wausau	4	12.0
<i>Nevada</i>			<i>Wyoming</i>		
Arthur	2	.....	Alta	14	.....
North Fork	8	.....	Yellowstone Park	8	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

Depth of Snow on Ground, 8 p. m., February 9, 1931



SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief

No. 10

WASHINGTON, D. C., FEBRUARY 18, 1931

WINTER 1930-31

CLIMATOLOGICAL DIVISION OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED FEBRUARY 16

In the preceding issue of this bulletin it was stated that snow was falling on the 9th in the northeastern portion; there was some additional snowfall on the 10th in this portion, but otherwise not much new snow was reported till the 12th. A well-developed storm moved eastward across the Lake region on that day and the 13th, thence down the St. Lawrence Valley by the end of the 14th, causing considerable snowfall in many northern districts from Minnesota to Maine, also in the Appalachian Mountains as far south as West Virginia.

After the 14th no snow of consequence fell anywhere east of the Rocky Mountains, but there was widespread precipitation from the 13th onward in the Mountain, Plateau, and Pacific regions, and this seems to have been snow at the higher stations, a few of the highest that report indicating increases in depth during the week of more than a foot. At intermediate elevations there usually are but slight increases reported, or in some instances decreases.

DEPTH OF SNOW ON GROUND

Practically all parts of New England and New York are now covered with snow, save Long Island and the district around New York City; and the depths are considerable over large portions, although from southern New England westward to the shores of the Great Lakes they are mainly much less than last week. The greater part of Pennsylvania and small parts of New Jersey and West Virginia have a scanty cover.

There is no snow along or near the south shore of Lake Erie, save to eastward of Erie, Pa., and there is practically none near the southern half of Lake Michigan.

Most of the upper Michigan peninsula and the northernmost part of the lower have a deep cover.

Only extremely small portions of the Ohio and Missouri Valleys now have any snow, while the upper Mississippi Valley is covered only near the source of the river.

The far West mostly has snow only at considerable elevations. Montana is practically without snow, save in the mountains and near the western boundary, and the greater part of northern and eastern Wyoming is bare. In the high California mountains, however, the week saw a considerable increase in the amount of packed snow.

ICE IN RIVERS AND HARBORS

The ice situation has not changed materially during the week, except in the Missouri River and its tributaries, where ice has quite disappeared at some points, and at some others has broken up or softened. The Missouri River and the upper Mississippi are now solidly frozen at only a few points, while no ice whatever is reported at or below Yankton, S. Dak., or Keokuk, Iowa.

Many stations in the Lake region report slight gains in ice thickness, due probably to the prevalence of low temperatures about the 14th and 15th. However, several Lake Erie harbors are still without ice or practically without.

The lakes and rivers of New England are mainly well covered, while the Hudson and Susquehanna Rivers are largely frozen over. In the easternmost tributaries of the Ohio River a little ice is noted in localities, but the lower tributaries and the Ohio River itself appear to be entirely free.

The harvest of natural ice is now complete at substantially all places where it is customarily gathered.

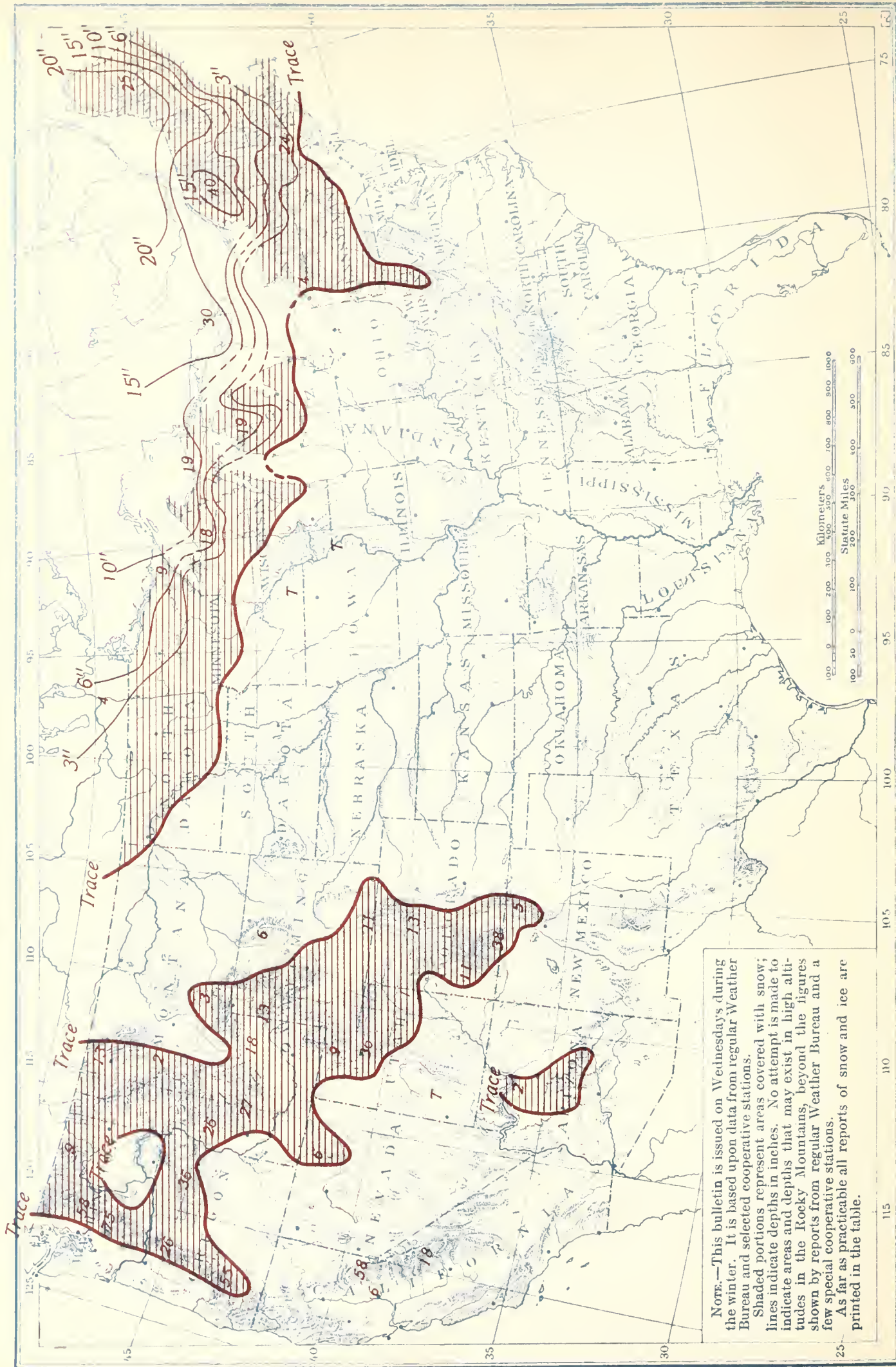
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., FEBRUARY 16, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Barrow.....	8	.....	Concord.....	12	17.0
Fairbanks.....	13	23.0	Lancaster.....	13	.....
Fort Yukon.....	23	.....	Pittsburg.....	25	.....
Nome.....	11	.....	<i>New Jersey</i>		
<i>Arizona</i>			Newton.....	1	.....
Flagstaff.....	2	.....	<i>New Mexico</i>		
Grand Canyon.....	2	.....	Aurora.....	4	.....
Williams.....	1	.....	Chacon.....	4	.....
<i>California</i>			Chama.....	9	.....
Blue Canyon.....	6	.....	Elizabethtown.....	5	.....
Huntington Lake.....	18	.....	<i>New York</i>		
Soda Springs.....	58	.....	Albany.....	4	8.0
Yosemite.....	T.	.....	Binghamton.....	1	†
<i>Colorado</i>			Canton.....	13	.....
Cumbres.....	38	.....	Glens Falls.....	12	.....
Dillon.....	13	.....	Herkimer.....	8	.....
Leadville.....	2	.....	Ithaca.....	4	.....
Rico.....	11	.....	Lake Placid.....	25	.....
Steamboat Springs.....	12	.....	Lowville.....	24	.....
<i>Connecticut</i>			Old Forge.....	39	.....
West Cornwall.....	24	.....	Oswego.....	14	14.0
<i>Idaho</i>			Rome.....	7	.....
Big Creek.....	14	.....	<i>North Dakota</i>		
Idaho City.....	14	.....	Bismarek.....	T.	20.0
Kellogg.....	3	.....	Williston.....	T.	‡
Ketchum.....	12	.....	<i>Ohio</i>		
McCall.....	26	.....	Cleveland.....	0	*
Mackay.....	3	.....	<i>Oregon</i>		
Mascot Mine.....	16	.....	Crater Lake.....	55	.....
Shake Creek.....	14	.....	Government Camp.....	26	.....
Spencer.....	18	.....	Meacham.....	12	.....
Vienna Mine.....	27	.....	Olive Lake.....	29	.....
<i>Iowa</i>			Wallowa.....	4	.....
Des Moines.....	0	2.0	<i>Pennsylvania</i>		
Dubuque.....	T.	‡	Emporium.....	1	.....
<i>Maine</i>			Erie.....	0	10.0
Gardiner.....	18	17.0	Franklin.....	2	.....
Greenville.....	23	23.0	Freeland.....	7	.....
Oldtown.....	15	.....	Gordon.....	1	.....
Portland.....	6	0.0	Towanda.....	1	.....
Van Buren.....	23	.....	Williamsport.....	1	.....
<i>Massachusetts</i>			<i>Utah</i>		
Amherst.....	4	.....	Logan.....	9	.....
Holyoke.....	13	15.0	Price.....	1	.....
Williamstown.....	9	.....	Salt Lake City.....	T.	.....
<i>Michigan</i>			Silver Lake.....	36	.....
Alpena.....	1	8.0	<i>Vermont</i>		
Benzonia.....	8	.....	Bellows Falls.....	4	.....
Cadillac.....	5	.....	Brattleboro.....	12	15.0
Elmira.....	19	.....	Burlington.....	10	8.0
Escanaba.....	2	15.0	Northfield.....	14	.....
Houghton.....	13	11.5	St. Johnsbury.....	16	.....
Iron Mountain.....	2	.....	White River Junction.....	10	.....
Iron River.....	9	.....	<i>Washington</i>		
Munising.....	19	.....	Paradise Inn.....	75	.....
Port Huron.....	1	9.0	Twisp.....	12	.....
Sault Ste. Marie.....	8	15.0	<i>West Virginia</i>		
Sidnaw.....	17	.....	Bayard.....	1	.....
<i>Minnesota</i>			Camden-on-Gauley.....	T.	.....
Duluth.....	T.	18.0	<i>Wisconsin</i>		
Ely.....	9	.....	Medford.....	1	.....
Leech Lake Dam.....	3	.....	Park Falls.....	3	.....
Roseau.....	7	.....	Rhineland.....	1	.....
Virginia.....	5	.....	<i>Wyoming</i>		
<i>Montana</i>			Cody.....	2	.....
Belton.....	13	.....	Dixon.....	9	.....
Bozeman.....	3	.....	Dome Lake.....	6	.....
Missoula.....	2	.....	Evanston.....	3	.....
<i>Nevada</i>			Foxpark.....	11	.....
North Fork.....	6	.....	Yellowstone Park.....	8	.....

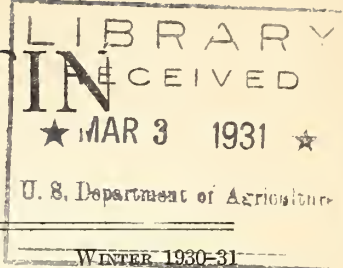
*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

Depth of Snow on Ground, 8 p. m., February 16, 1931



SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief



No. 11

WASHINGTON, D. C., FEBRUARY 25, 1931

CLIMATOLOGICAL DIVISION OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED FEBRUARY 23

Several centers of low pressure, mainly of feeble energy, passed to southwestward and southward of New York and New England during the period 18th to 21st, causing considerable snowfall, especially in Vermont and New Hampshire.

About the 17th snow, which had been falling in the higher portions of the Cascades, extended eastward to Idaho and later southward to the central California mountains, then to the higher portions of Nevada, Utah, and Arizona by the 20th. During the latter part of the week, while the snowfall practically ceased in the Pacific and the western Plateau States, there were falls farther eastward, particularly in New Mexico on the 21st to 23d and from Wyoming southeastward over northeastern Colorado and western Nebraska on the 20th to 22d.

No important snowfall occurred during the week in the north-central portion of the country or the Lake region, and practically none in the Appalachians south of New York.

DEPTH OF SNOW ON GROUND

While part of extreme southern New England has lost the scanty snow cover which it had a week ago, yet generally about the same areas of New York and New England have snow on the ground that reported it last week. Some portions of northern New England have from 10 to 13 inches greater depth.

Practically all of northeastern West Virginia and western and south-central Pennsylvania have lost their slight cover of snow.

In Michigan the area covered is about the same, but many stations in central or northern counties report less depths. In Wisconsin, Minnesota, and North Dakota a smaller area is now covered than last week.

A considerable increase in the covered area was noted in eastern Wyoming and western Nebraska, where a number of stations reported from 2 to 9 inches gain in depth, most of them having previously had bare ground for some weeks. However, the greater part of Montana remained bare and there was little change in New Mexico, save some increases at southern stations.

Beyond the Continental Divide there was no considerable change in the area covered by snow, but many lofty stations noted increases in depth, particularly in southwestern and north-eastern Oregon and the south-central portion of Idaho.

In many portions of the far West, where the winter storage of snow has an important bearing on the next summer's stream-flow, there has been this winter much less snow stored in the elevated portions than the average of previous winters up to this date.

ICE IN RIVERS AND HARBORS

This week brought no marked change in the ice situation, but several stations, particularly in the upper Lake region, report less ice than a week ago. A few increases in thickness are reported at interior New England points, though even there decreases predominate. The actual thicknesses in New England are nowhere unusual for late February.

The lower Hudson River has comparatively little ice at the present time, but the Mohawk and the upper Hudson report scanty to moderate quantities. In the rivers of the Atlantic system southwest of the Hudson ice is now either lacking or unimportant. The Ohio and upper Mississippi Rivers and their tributaries are practically without ice, save in parts of Wisconsin and Minnesota. The ice situation in the Dakotas has not changed appreciably.

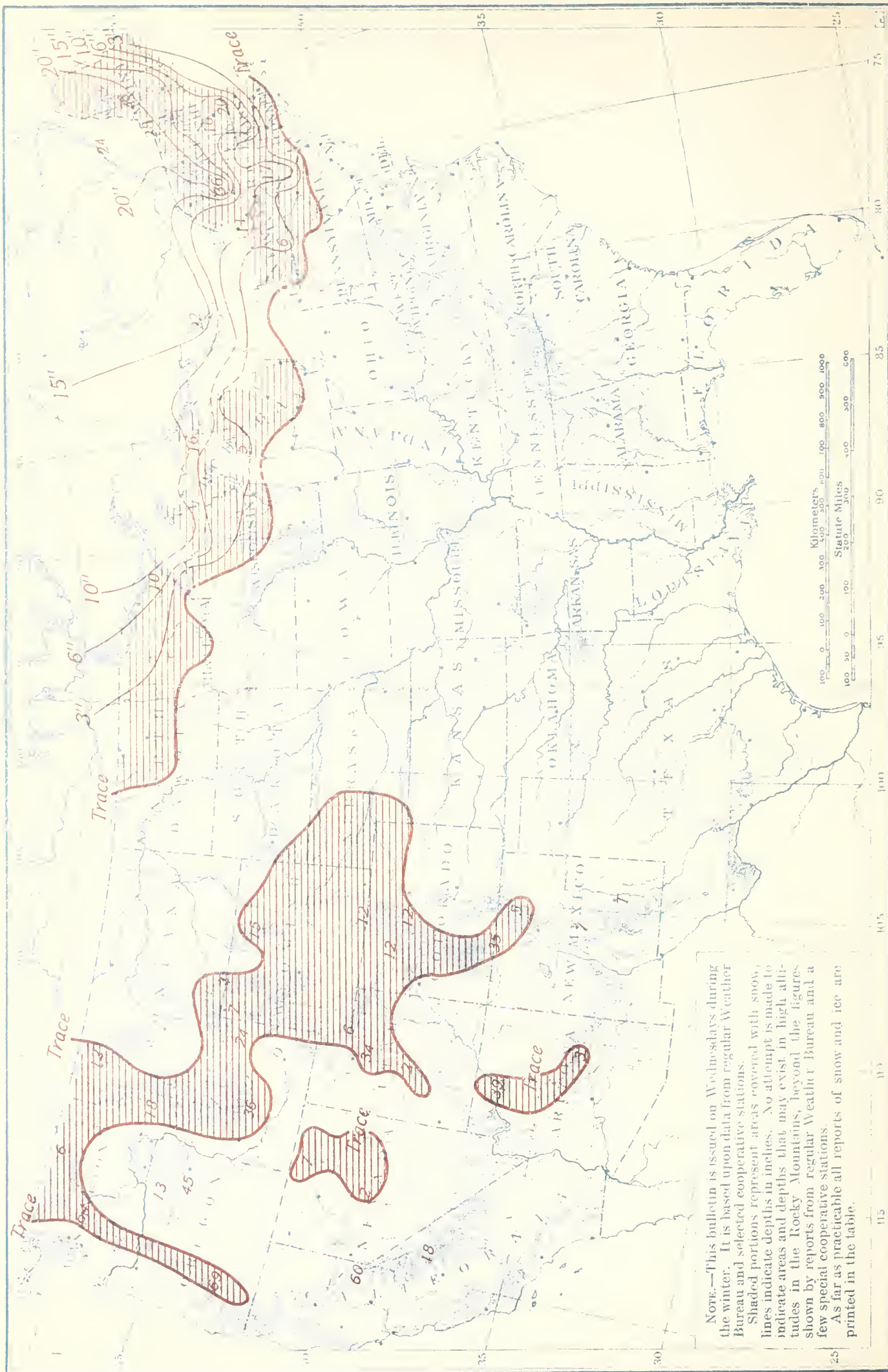
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., FEBRUARY 23, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Barrow	7	.....	Berlin	16	.....
Bethel	8	.....	Concord	10	17.0
Cordova	18	.....	Durham	20	.....
Eagle	22	.....	Hanover	16	.....
Fairbanks	12	28.5	Keene	13	.....
Fort Yukon	23	.....	Lancaster	14	.....
Nome	13	.....	Littleton	12	.....
<i>Arizona</i>			Pittsburg	28	.....
Bright Angel	39	.....	<i>New Mexico</i>		
Pinedale	3	.....	Chacon	2	.....
<i>California</i>			Chama	5	.....
Blue Canyon	4	.....	Corona	7	.....
Huntington Lake	18	.....	Elizabethtown	5	.....
Soda Springs	60	.....	Roswell	T.	.....
<i>Colorado</i>			<i>New York</i>		
Crested Butte	4	.....	Albany	4	*
Cumbres	35	.....	Beaver River	36	.....
Dillon	12	.....	Binghamton	1	0.0
Leadville	1	.....	Buffalo	1	4.0
Steamboat Springs	12	.....	Canton	14	.....
<i>Connecticut</i>			Jamestown	3	.....
Hartford	T.	6.5	Jeffersonville	12	.....
<i>Idaho</i>			Oswego	11	13.5
Hailey	14	.....	Poughkeepsie	1	.....
Ketchum	18	.....	Rochester	2	8.0
Kirkham	10	.....	Roxbury	17	.....
Pierce City	18	.....	Syracuse	6	.....
Shake Creek	16	.....	Warwick	6	.....
Soldier Creek	20	.....	Watertown	8	.....
Spencer	24	.....	<i>Oregon</i>		
Vienna Mine	36	.....	Crater Lake	69	.....
<i>Maine</i>			Fish Lake	12	.....
Gardiner	16	14.0	Government Camp	26	.....
Greenville	26	23.0	Imperial Mine	45	.....
Oldtown	16	.....	Meacham	13	.....
Portland	9	0.0	Olive Lake	33	.....
Van Buren	23	.....	<i>Pennsylvania</i>		
<i>Massachusetts</i>			Erie	0	10.0
Boston	T.	0.0	Scranton	T.	.....
Concord	5	.....	Williamsport	T.	.....
Holyoke	12	14.0	<i>Rhode Island</i>		
Williamstown	4	.....	Providence	T.	0.0
<i>Michigan</i>			<i>Utah</i>		
Alpena	1	1.0	Duchesne	1	.....
Benzonia	5	.....	Manti	2	.....
Bessemer	12	.....	Silver Lake	34	.....
Escanaba	T.	15.0	Tooele	4	.....
Mackinaw	7	.....	<i>Vermont</i>		
Marquette	9	0.0	Bellows Falls	6	.....
Mount Pleasant	2	.....	Brattleboro	18	20.0
Newberry	16	.....	Burlington	23	10.0
Sault Ste. Marie	4	14.5	Northfield	17	.....
<i>Minnesota</i>			Rutland	9	.....
Duluth	0	18.0	St. Johnsbury	16	.....
Ely	10	.....	White River Junction	11	.....
Roseau	4	.....	<i>Washington</i>		
Virginia	3	.....	Chesaw	6	.....
<i>Montana</i>			Snoqualmie Pass	64	.....
Belton	12	.....	Twisp	12	.....
Big Timber	T.	.....	<i>Wisconsin</i>		
Dillon	3	.....	Green Bay	T.	4.0
Red Lodge	4	.....	Wausau	1	5.0
<i>Nebraska</i>			<i>Wyoming</i>		
Alliance	4	.....	Barnum	3	.....
Hyannis	2	.....	Casper	2	.....
Imperial	4	.....	Lander	3	.....
Lodgepole	5	.....	Newcastle	1	.....
<i>Nevada</i>			Sheridan	1	.....
Austin	2	.....	Yellowstone Park	7	.....
North Fork	7	.....	Yoder	6	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

Depth of Snow on Ground, 3 p. m., February 23, 1931



SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
 CHARLES F. MARVIN, Chief

No. 12

WASHINGTON, D. C., MARCH 4, 1931

WINTER 1930-31

CLIMATOLOGICAL DIVISION OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED MARCH 2

Three storms caused widespread snowfall, though the amounts were mainly light to moderate. The more northerly storm was central near Puget Sound early on the 25th and advanced to eastern South Dakota by the forenoon of the 27th; snow fell in connection with this storm over much of Oregon and Washington, southern Idaho, northern Utah, and Wyoming. On the 27th and 28th the storm advanced to the upper Lake region, snow occurring from eastern North Dakota to northern Michigan, a few stations reporting this snow the first to occur in their localities since the preceding November.

From the lower Rio Grande Valley on the 27th the second storm traveled northeastward to the Virginia coast on the 1st, bringing snow to the upper Ohio Valley, Pennsylvania, and the southern parts of New York and New England.

The third storm was central in the southern Rocky Mountains on the 27th, and swung far southward into the Gulf of Mexico, then turned northeastward. Snowfall resulted over large portions of Colorado, New Mexico, and northwestern Texas, several inches falling at Amarillo, Tex., on the 28th. The southern portion of Kansas and the Ozark region also had a little snow at this time.

Some snow fell in the Adirondacks and northern New England during the week, chiefly on or about the 27th.

DEPTH OF SNOW ON GROUND

The area covered shows no marked change, but several slight shifts. In most of New England and New York, save a few northern portions, there has been a moderate decrease in depth, and part of southern New England lost all its cover.

Much of west-central Wisconsin, central Minnesota, and eastern North Dakota gained a snow cover, and part of Minnesota is under from 4 to 6 inches of snow, instead of being bare.

Northeastern Wyoming is now largely free from snow, though it was slightly covered last week. On the other hand, much of eastern Colorado and northeastern New Mexico acquired a light to considerable cover.

In central Utah some sections have lost their snow cover during the week, and most reports from the higher stations in California, Nevada, and Arizona indicate decreases in depth.

ICE IN RIVERS AND HARBORS

In New England most stations report less ice than a week ago, and the lower Connecticut River now has comparatively little ice. The Susquehanna, Delaware, and lower part of the Hudson are now without ice of importance.

In the harbors of the Lake region there usually were slight decreases in thickness during the week.

The Ohio and Mississippi Rivers are almost completely free of ice and the Missouri River is free from Pierre, S. Dak., to its mouth, though still frozen at North Dakota points.

The ice conditions of the Great Lakes are summarized in the following telegram from the official in charge at Detroit, Mich.:

Lake Superior: Duluth harbor opening; ice not heavy; practically no ice fields reported; Whitefish Bay opening; St. Marys River, ice much lighter and lower river open. Lake Michigan: Ice fields confined to Green Bay and extreme north end; heavy windrows at Straits. Lake Huron: Ice fields confined to east shore and extreme south portion; St. Clair River open to St. Clair; Lake St. Clair nearly free; Detroit River open. Lake Erie: Ice fields over east portion; much lighter than usual. Lake Ontario: Ice confined to extreme east portion.

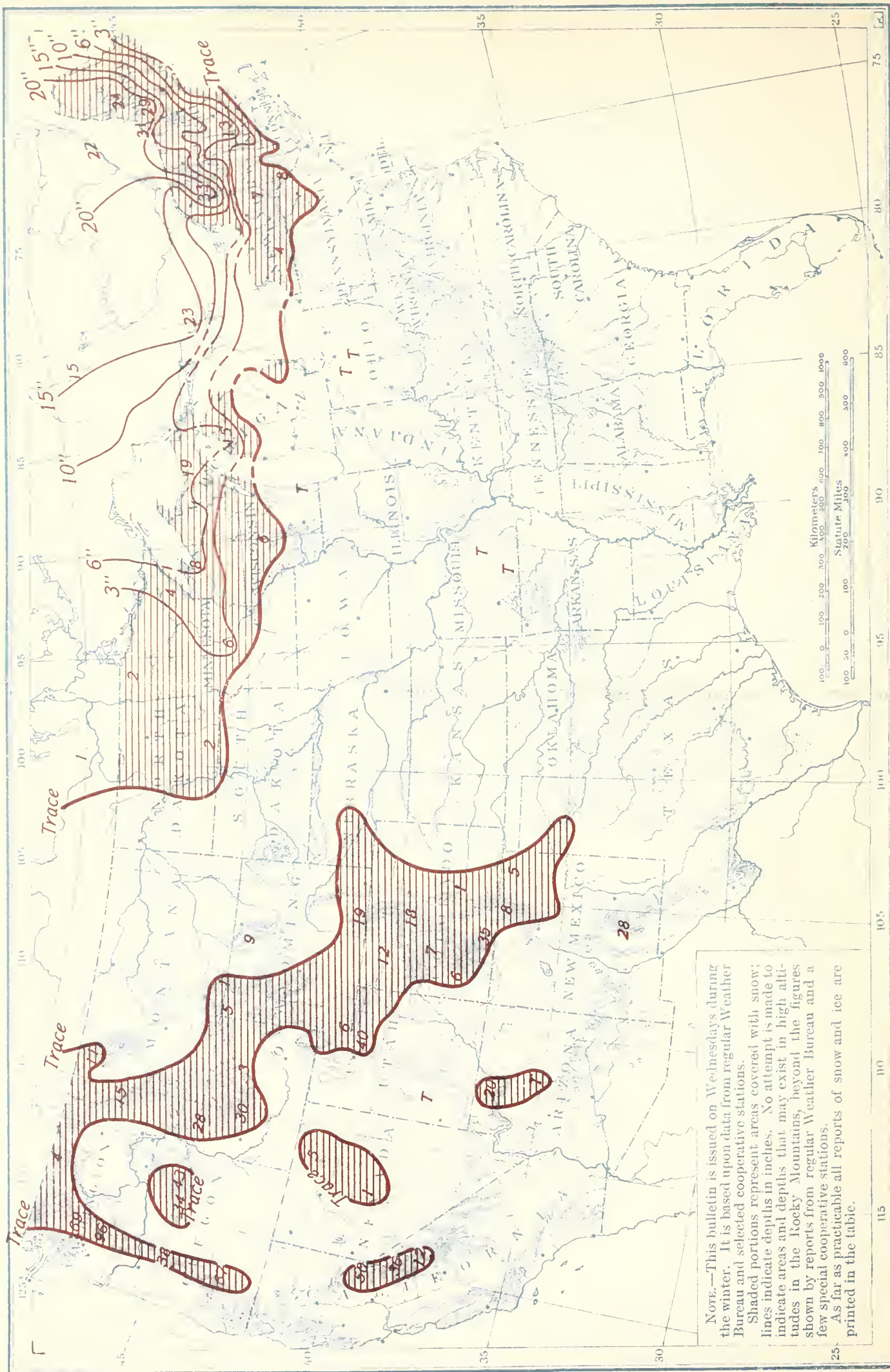
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., MARCH 2, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Bethel.....	8	.....	Concord.....	2	12.0
Eagle.....	25	.....	Durham.....	17	.....
Fort Yukon.....	24	.....	Hanover.....	14	.....
Nome.....	13	.....	Keene.....	9	.....
<i>Arizona</i>			Pittsburg.....	31	.....
Bright Angel.....	20	.....	Woodsville.....	8	.....
Flagstaff.....	T.	.....	<i>New Mexico</i>		
Grand Canyon.....	T.	.....	Chacon.....	4	.....
<i>California</i>			Cloudcroft.....	28	.....
Huntington Lake.....	12	.....	Des Moines.....	5	.....
Relief.....	36	.....	Elizabethtown.....	8	.....
Soda Springs.....	50	.....	<i>New York</i>		
<i>Colorado</i>			Albany.....	2	*
Crested Butte.....	7	.....	Alfred.....	4	.....
Cumbres.....	35	.....	Glens Falls.....	10	.....
Dillon.....	18	.....	Lake Placid.....	14	.....
Rico.....	6	.....	Lowville.....	24	.....
Steamboat Springs.....	12	.....	Malone.....	10	.....
<i>Connecticut</i>			Norwich.....	7	.....
Hartford.....	0	0.5	Ogdensburg.....	6	.....
West Cornwall.....	20	.....	Old Forge.....	33	.....
<i>Idaho</i>			Plattsburg.....	20	.....
Big Creek.....	18	.....	Saranac Lake.....	24	.....
Ketchum.....	16	.....	Saratoga Springs.....	2	.....
Kirkham.....	12	.....	Watertown.....	8	.....
McCall.....	28	.....	<i>North Dakota</i>		
Mackay.....	3	.....	Bismarck.....	T.	18.0
Vienna Mine.....	30	.....	Devils Lake.....	1	.....
<i>Maine</i>			Ellendale.....	2	.....
Farmington.....	29	.....	Williston.....	0	18.0
Gardiner.....	12	12.0	<i>Ohio</i>		
Greenville.....	24	25.0	Ashland.....	T.	.....
Millinocket.....	22	.....	Tiffin.....	T.	.....
Oldtown.....	14	.....	<i>Oregon</i>		
Van Buren.....	23	.....	Crater Lake.....	67	.....
<i>Massachusetts</i>			Government Camp.....	38	.....
Concord.....	2	12.0	Imperial Mine.....	43	.....
Holyoke.....	9	10.0	Olive Lake.....	34	.....
Williamstown.....	1	.....	<i>Pennsylvania</i>		
<i>Michigan</i>			Freeland.....	2	.....
Benzonia.....	3	.....	Towanda.....	T.	.....
Cadillac.....	2	.....	<i>Texas</i>		
Elmira.....	15	.....	Amarillo.....	T.	.....
Escanaba.....	2	15.0	<i>Utah</i>		
Houghton.....	12	8.0	Silver Lake.....	40	.....
Iron Mountain.....	4	.....	Watson.....	1	.....
Iron River.....	6	.....	<i>Vermont</i>		
Marquette.....	6	0.0	Brattleboro.....	13	16.0
Munising.....	19	.....	Burlington.....	17	14.0
Newberry.....	18	.....	St. Johnsbury.....	14	.....
Port Huron.....	T.	4.0	White River Junction.....	7	.....
Sault Ste. Marie.....	5	15.0	<i>Washington</i>		
Sidnaw.....	12	.....	Chesaw.....	4	.....
<i>Minnesota</i>			Paradise Inn.....	96	.....
Collegeville.....	6	.....	Snoqualmie Pass.....	69	.....
Duluth.....	2	15.5	Twisp.....	8	.....
Fort Ripley.....	4	.....	<i>Wisconsin</i>		
Leech Lake Dam.....	1	.....	Ashland.....	8	.....
Minneapolis.....	1	.....	Eau Claire.....	2	.....
Moorhead.....	T.	14.0	Medford.....	2	.....
Mora.....	5	.....	Stevens Point.....	6	.....
St. Paul.....	2	0.0	Wausau.....	2	5.0
<i>Montana</i>			<i>Wyoming</i>		
Belton.....	11	.....	Cheyenne.....	2	.....
Haugan.....	15	.....	Dixon.....	9	.....
Red Lodge.....	1	.....	Doane Lake.....	9	.....
<i>Nevada</i>			Evanston.....	6	.....
Austin.....	1	.....	Foxpark.....	19	.....
Eureka.....	T.	.....	South Pass City.....	1	.....
North Fork.....	5	.....	Yellowstone Park.....	5	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
 T. indicates trace.

Depth of Snow on Ground, 8 p. m., March 2, 1931



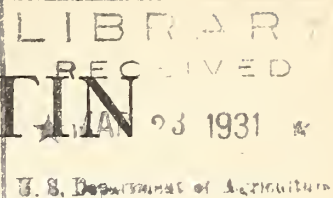
NOTE.—This bulletin is issued on Wednesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.

Shaded portions represent areas covered with snow; lines indicate depths in inches. No attempt is made to indicate areas and depths that may exist in high altitudes in the Rocky Mountains, beyond the figures shown by reports from regular Weather Bureau and a few special cooperative stations.

As far as practicable all reports of snow and ice are printed in the table.

SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief



No. 13

WASHINGTON, D. C., MARCH 11, 1931

WINTER 1930-31

CLIMATOLOGICAL DIVISION OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED MARCH 9

Three storms of marked importance in bringing snow were active during the week. The storm which was noted in the preceding issue as taking a southerly course to the central portion of the Gulf of Mexico, and thence turning northeastward, was east of the Carolinas on the 3d and from the 4th to the 6th was east of New England, causing snowfall over that section, most of New York, and part of Pennsylvania.

The second storm, from the 3d to the 6th, crossed the country in a southerly course, mostly just to eastward of the Continental Divide, and snow fell over most of the Mountain States and some western portions of the Plains.

The third storm was apparently an offshoot from the second, and was over the central valleys on the 7th, then near the lower Lakes on the 8th and 9th. Snow fell over the central Plains and the Ozarks, the central valleys, almost every portion of the Lake region and the Ohio Valley, the northern Middle Atlantic States, and by the evening of the 9th was falling in western New England. Decidedly heavy falls occurred in a strip extending from northern Missouri to western New York, several stations which had bare ground last week now measuring from 10 to 14 inches, and many noting severe drifting and vast inconvenience to traffic.

DEPTH OF SNOW ON GROUND

A great increase in the area covered by snow is noted, the region from the central portions of Pennsylvania and West Virginia westward to eastern Wyoming, Nebraska, and central Kansas now being covered, with deep snow from northern Indiana and extreme southern Michigan westward across northeastern and central Illinois to north-central Missouri. Southern New England is now nearly all covered and in western New York the depths have increased greatly.

Northern Iowa, southern Minnesota, and eastern South Dakota continue mainly bare, and some portions of eastern Colorado and the Texas Panhandle have lost the slight cover reported a week ago.

The area covered in northern Arizona has diminished greatly, while almost every station reporting from the mountains of the Pacific States indicates a decrease in depth since last week.

In northern New England several stations report almost 30 inches of snow, and a few in the Adirondack region slightly more than that. No other section east of the Rocky Mountains has snow depths even nearly as great, the vicinity of Lake Superior especially having little snow on the ground for the time of year.

ICE IN RIVERS AND HARBORS

The week averaged somewhat warmer than normal in most of the northern portion of the country, and no marked change in the ice situation was reported. The Hudson and Mohawk Rivers now have comparatively little ice. Navigation of the lower portion of the Connecticut River was resumed on the 4th.

The ice conditions of the Great Lakes are summarized in the following telegram from the official in charge at Detroit, Mich.:

Lake Superior: Duluth Harbor opening; no fields of any extent from Duluth to Whitefish Point; St. Marys River, no change. No change north end Green Bay. No fields reported along west or east shore of Lake Michigan to beyond Charlevoix; no change at Straits—ice heavily windrowed. Lake Huron: No fields, except in Saginaw Bay and extreme south end of lake; St. Clair River, no change; Lake St. Clair, fields still running out; Detroit River open. Lake Erie: Ice fields extend from Ashtabula east to Buffalo where field extends beyond vision, but light. Lake Ontario: Fields confined to extreme east end.

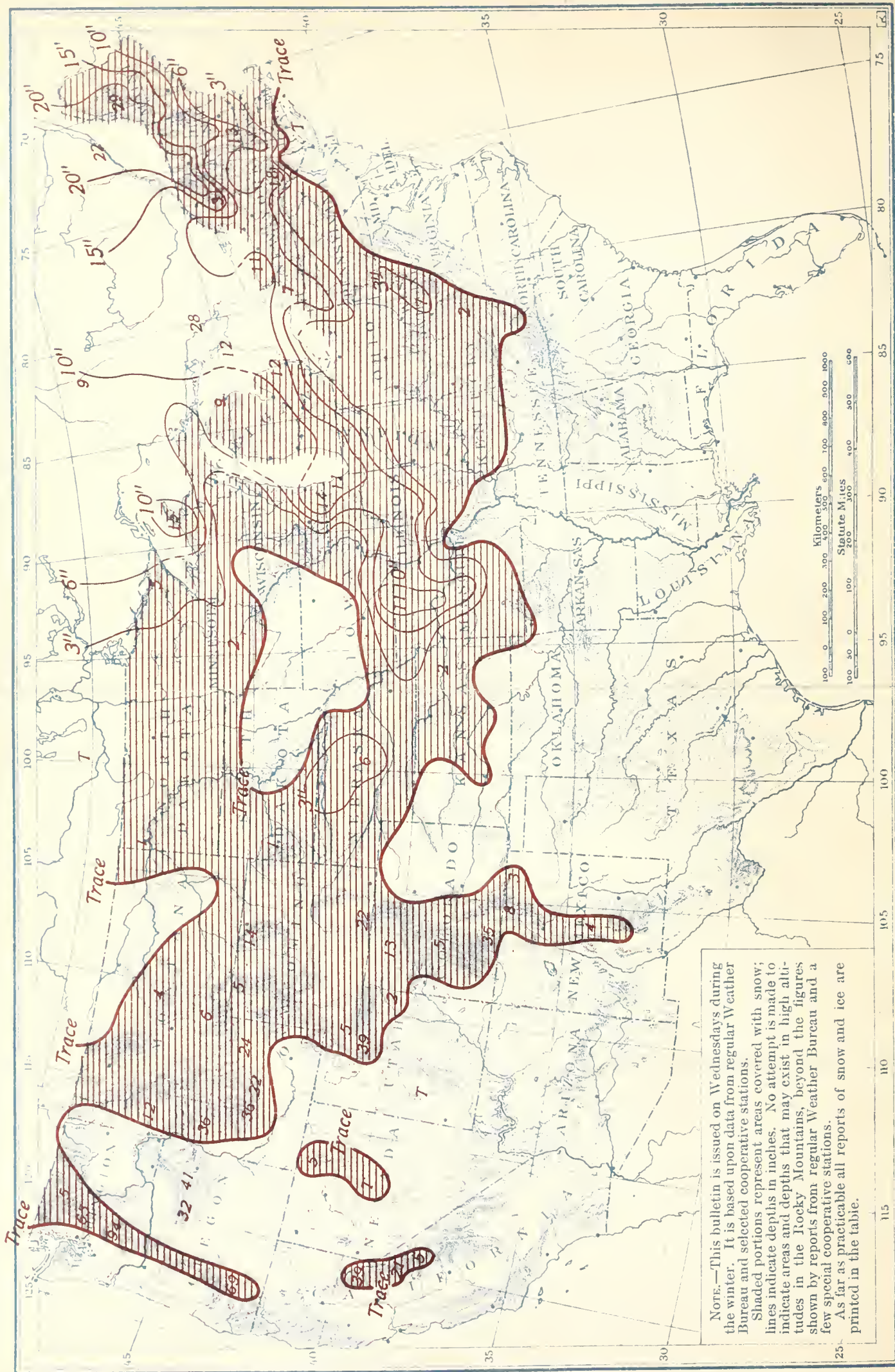
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., MARCH 9, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>California</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Huntington Lake	5	.....	Concord	2	10.0
Relief	21	.....	<i>New Mexico</i>		
Soda Springs	39	.....	Chacon	8	.....
<i>Colorado</i>			Corona	4	.....
Cumbres	35	.....	Des Moines	3	.....
Dillon	20	.....	Elizabethtown	8	.....
Leadville	3	.....	<i>New York</i>		
<i>Idaho</i>			Albany	3	0.0
Mascot Mine	22	.....	Beaver River	30	.....
Pierce City	12	.....	Buffalo	10	*†
Soldier Creek	21	.....	Dansville	6	.....
<i>Illinois</i>			Fredonia	7	.....
Chicago	11	.....	Jamestown	8	.....
Griggsville	8	.....	Jeffersonville	5	.....
Pontiac	9	.....	Rochester	11	6.0
Springfield	7	.....	Roxbury	18	.....
Waukegan	14	.....	<i>North Carolina</i>		
Windsor	6	.....	Asheville	T.	.....
<i>Indiana</i>			<i>Ohio</i>		
Angola	7	.....	Beverly	1	.....
Collegeville	13	.....	Cincinnati	2	0.0
Fort Wayne	4	.....	Cleveland	1	*
Notre Dame	14	.....	Cortland	6	.....
Royal Center	5	.....	Holgate	3	.....
Whiting	12	.....	Millport	5	.....
<i>Iowa</i>			Wapakoneta	1	.....
Albia	12	.....	<i>Oregon</i>		
Keokuk	7	0.0	Crater Lake	69	.....
<i>Kansas</i>			Government Camp	29	.....
Phillipsburg	1	.....	Meacham	8	.....
Topeka	2	.....	Olive Lake	32	.....
<i>Kentucky</i>			<i>Pennsylvania</i>		
Beattyville	2	.....	Beaver Falls	2	.....
Eubank	2	.....	Emporium	4	.....
Greensburg	2	.....	Erie	6	3.0
Lexington	2	.....	Gordon	2	.....
Maysville	2	.....	Parkers Landing	3	.....
Mount Sterling	1	.....	Pittsburgh	2	0.0
<i>Maine</i>			Warren	6	.....
Gardiner	14	10.0	<i>Rhode Island</i>		
Greenville	29	25.0	Kingston	T.	.....
<i>Massachusetts</i>			<i>Utah</i>		
Concord	4	.....	Silver Lake	39	.....
Holyoke	12	7.0	Watson	2	.....
<i>Michigan</i>			<i>Vermont</i>		
Ann Arbor	8	.....	Brattleboro	13	15.0
Battle Creek	8	.....	Burlington	20	14.0
Cassopolis	12	.....	Rutland	9	.....
Detroit	4	†	<i>Virginia</i>		
East Tawas	10	.....	Wytheville	1	.....
Sault Ste. Marie	3	18.0	<i>Washington</i>		
<i>Minnesota</i>			Paradise Inn	94	.....
Duluth	T.	14.0	Snoqualmie Pass	65	.....
Ely	5	.....	<i>West Virginia</i>		
Virginia	3	.....	Bayard	2	.....
<i>Missouri</i>			Camden-on-Gauley	7	.....
Columbia	5	.....	Clarksburg	1	.....
Hannibal	4	0.0	Elkins	6	.....
Macon	7	.....	Parkersburg	1	0.0
Unionville	11	.....	<i>Wisconsin</i>		
<i>Montana</i>			Brodhead	14	.....
Bozeman	6	.....	Fond du Lac	3	.....
Stanford	4	.....	Milwaukee	11	.....
<i>Nebraska</i>			Racine	20	.....
Auburn	5	.....	Stevens Point	1	.....
Broken Bow	6	.....	Wausau	1	5.0
Imperial	3	.....	<i>Wyoming</i>		
Omaha	2	0.0	Casper	2	.....
O'Neill	2	.....	Cody	5	.....
Valentine	4	.....	Foxpark	22	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. Indicates trace.

Depth of Snow on Ground, 8 p. m., March 9, 1931



NOTE.—This bulletin is issued on Wednesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.

Shaded portions represent areas covered with snow; lines indicate depths in inches. No attempt is made to indicate areas and depths that may exist in high altitudes in the Rocky Mountains, beyond the figures shown by reports from regular Weather Bureau and a few special cooperative stations.

As far as practicable all reports of snow and ice are printed in the table.

SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief

LIBRARY
RECEIVED
MAR 20 1931
U. S. DEPARTMENT OF AGRICULTURE

No. 14

WASHINGTON, D. C., MARCH 18, 1931

WINTER 1930-31

CLIMATOLOGICAL DIVISION OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED MARCH 16

The storm center noted in the preceding issue as near the lower Lakes on the 9th crossed the New England coast line on the 10th, but low pressure persisted to eastward or northeastward of New England till the 13th, and snow fell during parts of several days from northern Pennsylvania northeastward, though the amounts usually were small.

A less intense depression covered much of the northern Rocky Mountain area on the 11th and 12th and traveled southeastward, passing over the Ohio Valley and reaching the Carolina coast on the 15th. Snow, mainly of moderate amounts, occurred to northward of the center as it advanced; the ground was covered from northern Montana and North Dakota eastward, and especially over the upper Ohio Valley and almost all of the Middle Atlantic States. In much of the eastern portion of the latter this was the most considerable snowfall since December, though only moderate in quantity.

The higher mountain portions of the Pacific and the northern Plateau States received considerable new snow during the week, chiefly during the first half.

DEPTH OF SNOW ON GROUND

Most of central and northwestern New England has less snow than a week ago. In the vicinity of the lower Delaware River, and to the southward as far as central Virginia, a scanty cover is noted this week, while the Appalachian region once more shows a little snow as far south as southern West Virginia.

Most portions of the Ohio, upper Mississippi, and lower Missouri Valleys are bare once more, and the area deeply covered last week from northern Missouri to the vicinity of Lake Ontario has lost many inches; in fact, all the snow to westward of central Illinois has gone, though the northern portions of that State, Indiana and Ohio, and also southern Michigan, now have a little snow.

Except the very northernmost portion, the Plains region is without snow; likewise almost all of Montana and Wyoming. In the Pacific States and the northern Plateau area, of stations which had snow last week the lower ones usually now have less, but many higher stations report gains of several inches in depth.

ICE IN RIVERS AND HARBORS

The week averaged warmer than normal in the north-central portion of the country and in New England, but colder than normal in most of the Ohio Valley and Middle Atlantic States.

Only a few widely scattered stations report thicker ice than a week ago. On the other hand, losses in thickness or breaking up of ice are noted at several stations, especially around Lake Superior and in New England. Navigation of the Hudson River as far as Albany was resumed on the 11th.

The Ohio and Mississippi Rivers are indicated as wholly free from ice; likewise the Missouri River below Bismarck, N. Dak.

The ice conditions of the Great Lakes are summarized in the following telegram from the official in charge at Detroit, Mich.:

Lake Superior: Harbor at Duluth opening rapidly; no ice fields reported from Duluth to Whitefish Point; no change in St. Marys River. Green Bay ice fields breaking up; no change at Escanaba. Lake Michigan: No ice fields reported along west shore nor east shore to north of Charlevoix; Straits continue windrowed and solid. Lake Huron: Practically no ice fields, except Saginaw Bay and extreme southern portion; St. Clair River open to St. Clair—closed south of there; Lake St. Clair, ice fields breaking up and moving into Detroit River. Lake Erie: Fields confined to east portion and are breaking and moving with winds. Lake Ontario: Fields confined to extreme east end where harbors are closed.

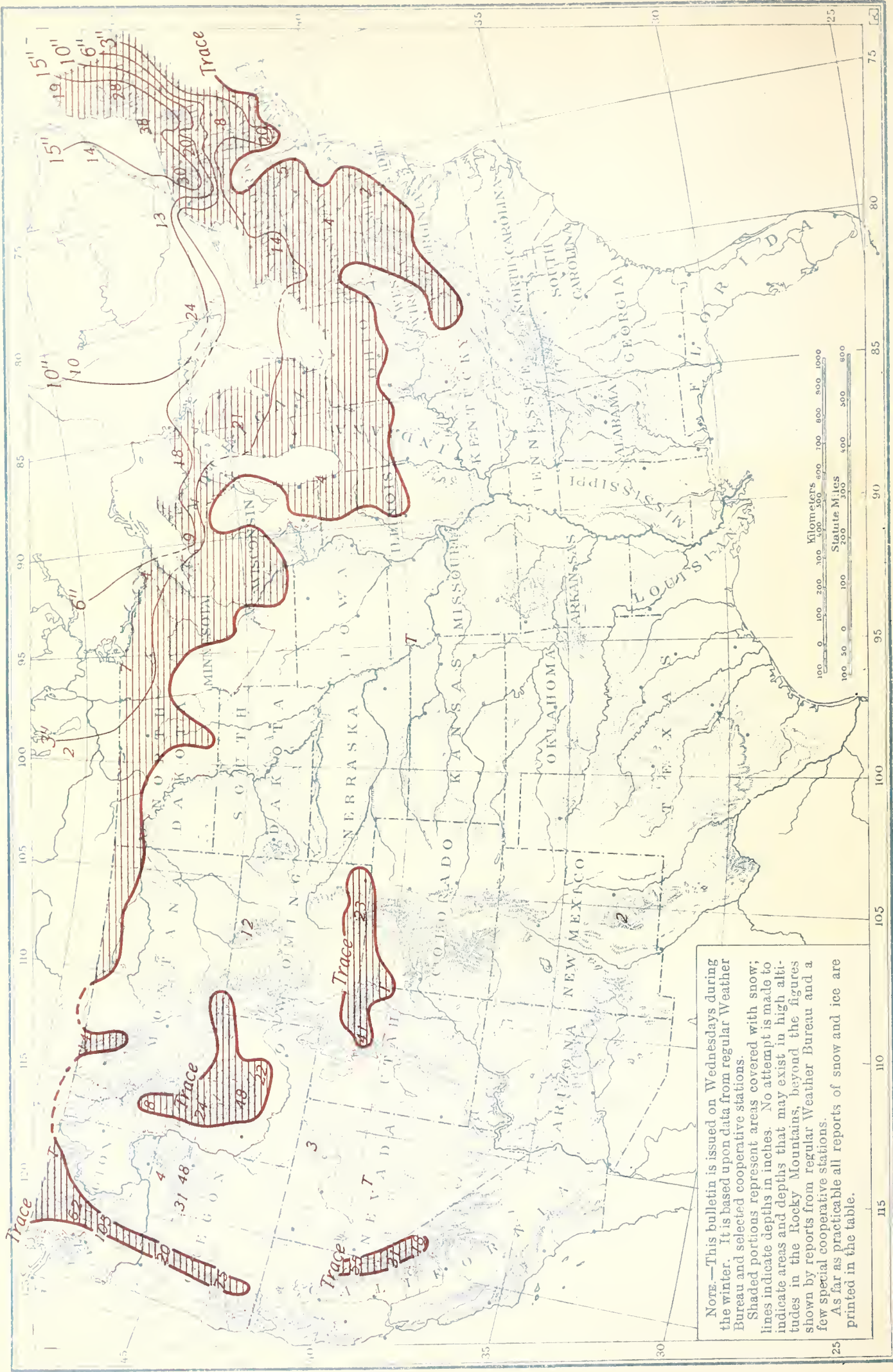
H. C. HUNTER.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., MARCH 16, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Eagle	23		Berlin	18	
Fairbanks	9	35.0	Concord	T.	8.0
Fort Yukon	24		Durham	17	
Nome	13		Hanover	10	
Tanana	12		Keene	8	
<i>California</i>			Littleton	19	
Huntington Lake	18		Pittsburg	38	
Relief	31		<i>New Jersey</i>		
Soda Springs	55		Newton	T.	
<i>Connecticut</i>			<i>New Mexico</i>		
West Cornwall	20		Cloudcroft	2	
<i>District of Columbia</i>			<i>New York</i>		
Washington	T.	0.0	Alfred	14	
<i>Idaho</i>			Beaver River	30	
Big Creek	21		Buffalo	5	2.0
Hailey	6		Ithaca	1	
Ketchum	13		Lake Placid	35	
McCall	24		Lowville	13	
Mascot Mine	22		Malone	11	
Pierce City	8		Old Forge	36	
Shake Creek	20		Oswego	6	0.0
Soldier Creek	18		Plattsburg	11	
Vienna Mine	48		Saranac Lake	30	
<i>Illinois</i>			Watertown	3	
Chicago	2		<i>North Dakota</i>		
Springfield	T.		Bismarck	0	18.0
Waukegan	4		Williston	2	‡
<i>Indiana</i>			<i>Ohio</i>		
Angola	2		Ashland	1	
Notre Dame	2		Charlestown	1	
Whiting	1		Millersburg	1	
<i>Maine</i>			Tiffin	1	
Farmington	31		<i>Oregon</i>		
Gardiner	12	9.0	Crater Lake	75	
Greenville	28	25.0	Government Camp	20	
Portland	9		Imperial Mine	48	
Van Buren	19		<i>Pennsylvania</i>		
<i>Maryland</i>			Franklin	2	
Baltimore	2	0.0	Freeland	5	
Oakland	1		Harrisburg	1	0.0
<i>Massachusetts</i>			Huntingdon	1	
Holyoke	8	2.0	Mifflintown	4	
Williamstown	2		Warren	7	
<i>Michigan</i>			Williamsport	2	
Benzenia	5		<i>Utah</i>		
Bessemer	9		Silver Lake	41	
Cassopolis	3		<i>Vermont</i>		
East Jordan	9		Brattleboro	7	*
Elmira	21		Burlington	15	14.0
Escanaba	T.	15.0	Northfield	20	
Grayling	16		White River Junction	8	14.0
Houghton	8	‡	<i>Virginia</i>		
Mackinaw	10		Culpeper	T.	
Mount Pleasant	3		Fredericksburg	T.	
Munising	18		<i>Washington</i>		
Port Huron	4	2.0	Paradise Inn	105	
Sault Ste. Marie	1	17.0	Snoqualmie Pass	62	
Sidnaw	9		<i>West Virginia</i>		
<i>Minnesota</i>			Bluefield	T.	
Duluth	1	*	Elkins	1	
Ely	4		<i>Wisconsin</i>		
Leech Lake Dam	1		Ashland	2	
Mora	1		Eau Claire	1	
Roseau	7		Madison	2	
Thief River Falls	4		Park Falls	2	
Virginia	3		Racine	4	
<i>Montana</i>			<i>Wyoming</i>		
Belton	14		Dixon	7	
<i>Nevada</i>			Dome Lake	12	
North Fork	3		Foxpark	23	

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

Depth of Snow on Ground, 8 p. m., March 16, 1931



SNOW AND ICE BULLETIN

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU
CHARLES F. MARVIN, Chief

MAR 3 1931

No. 15

WASHINGTON, D. C., MARCH 25, 1931

WINTER 1930-31

CLIMATOLOGICAL DIVISION OLIVER L. FASSIG, Chief

For the season, 50 cents. Remittance should be made to Superintendent of Documents, Government Printing Office, Washington, D. C.

GENERAL SUMMARY OF THE WEATHER FOR THE WEEK ENDED MARCH 23

The snowfall about the end of the preceding week, which was noted in the last issue, became moderately heavy in many eastern portions of the middle Atlantic area, but all this snow melted within a few days.

On the 18th and 19th snow fell over much of the upper Mississippi Valley and the Lake region, but this snow also melted rapidly.

In the central and southern Appalachians some snow fell toward the close of the week, and at the same time portions of Wyoming, the Dakotas, and Minnesota were visited by snow, but the falls were comparatively small save at a few high stations in Wyoming.

In the far Northwest considerable snow fell at some of the loftier stations, apparently during the first half of the week.

DEPTH OF SNOW ON GROUND

At the present time Maine is almost entirely covered with snow and the central and northern portions have deep snow. Of the remainder of New England the southern half is bare, and all of the southeastern portion of New York and most of the central portion now have no snow. In the Adirondack area the snow is still deep, as much as 28 inches being measured. No other amount so great is reported anywhere east of the Rocky Mountains.

A small part of Pennsylvania and a narrow strip in the middle and southern Appalachians have a light covering.

Several valley stations from southern Vermont to western Virginia report that, while the ground around the station is bare, the mountain tops near have considerable snow.

Almost half of Michigan, all of Minnesota save the northeastern part, and nearly all of Wisconsin and the Dakotas are free from snow.

Most portions of Wyoming and northern Colorado have acquired a cover during the week. In the Plateau and Pacific States no marked changes as to the areas covered are noted, but the high stations in California report decreased depths.

The information as to stored snow in the elevated portions of the Western States, especially at levels higher than those from which regular weekly reports are secured, indicate that the supply is in general considerably less than the average amount at this time of year. The shortage is particularly marked in Montana from the crest of the Continental Divide eastward and in Arizona. Practically all portions of the Pacific and Plateau States have material shortages. The least unsatisfactory situation is found in the central and eastern portions of Wyoming, Colorado, and New Mexico where the deficiency on several mountain ranges is slight.

ICE IN RIVERS AND HARBORS

In most of the comparatively few waters where ice remained last week there has been either a reduction of thickness or a breaking up of the ice during the last few days. In the rivers of North Dakota the ice is thinner by several inches.

The rivers of New England have recently lost considerable ice, but the larger lakes of that section show no marked change as yet in the ice situation. At Greenville, Me., the ice on Moosehead Lake is 25 inches thick. The Hudson and Mohawk Rivers are now free from ice.

The ice conditions of the Great Lakes are summarized in the following telegram from the official in charge at Detroit, Mich.:

Lake Superior: Duluth Harbor open; no ice field reported in Superior; St. Marys River, ice softening and ferry running at Sault Ste. Marie.

SNOW DEPTH AND ICE THICKNESS, 8 P. M., MARCH 23, 1931

Stations	Snow	Ice in rivers, harbors, etc.	Stations	Snow	Ice in rivers, harbors, etc.
<i>Alaska</i>	<i>Inches</i>	<i>Inches</i>	<i>New Hampshire</i>	<i>Inches</i>	<i>Inches</i>
Bethel.....	7	.....	Berlin.....	10	.....
Eagle.....	22	.....	Hanover.....	6	.....
Fairbanks.....	9	35.0	Keene.....	4	.....
Fort Yukon.....	17	.....	Littleton.....	16	.....
Nome.....	12	.....	Pittsburg.....	27	.....
<i>Arizona</i>			<i>New York</i>		
Bright Angel.....	12	.....	Albany.....	T.	0.0
<i>California</i>			Alfred.....	4	.....
Relief.....	24	.....	Beaver River.....	24	.....
Soda Springs.....	41	.....	Buffalo.....	T.	2.0
<i>Colorado</i>			Jeffersonville.....	3	.....
Cumbres.....	24	.....	Lake Placid.....	15	.....
Denver.....	1	.....	Malone.....	2	.....
Dillon.....	14	.....	Old Forge.....	28	.....
Steamboat Springs.....	5	.....	Plattsburg.....	4	.....
<i>Idaho</i>			Roxbury.....	11	.....
Big Creek.....	20	.....	Saranac Lake.....	18	.....
Ketchum.....	11	.....	<i>North Carolina</i>		
McCall.....	15	.....	Asheville.....	T.	.....
Pierce City.....	6	.....	<i>North Dakota</i>		
Shake Creek.....	13	.....	Bismarck.....	0	12.0
Soldier Creek.....	16	.....	Devils Lake.....	T.	.....
Spencer.....	5	.....	Ellendale.....	1	.....
Vienna Mine.....	60	.....	<i>Oregon</i>		
<i>Indiana</i>			Crater Lake.....	69	.....
Notre Dame.....	T.	.....	Government Camp.....	17	.....
<i>Maine</i>			Imperial Mine.....	48	.....
Farmington.....	21	.....	Meacham.....	2	.....
Gardiner.....	7	†	Olive Lake.....	39	.....
Greenville.....	23	25.0	<i>Pennsylvania</i>		
Millinocket.....	24	.....	Freeland.....	2	.....
<i>Massachusetts</i>			Warren.....	4	.....
Williamstown.....	T.	.....	<i>South Dakota</i>		
<i>Michigan</i>			Huron.....	T.	0.0
Bessemer.....	8	.....	<i>Utah</i>		
Detroit.....	0	†	Salt Lake City.....	41	.....
Elmira.....	16	.....	<i>Vermont</i>		
Escanaba.....	0	12.5	Bellows Falls.....	1	.....
Grayling.....	11	.....	Burlington.....	4	12.0
Houghton.....	T.	‡	Northfield.....	10	.....
Mackinaw.....	7	.....	St. Johnsbury.....	4	.....
Marquette.....	T.	†	<i>Virginia</i>		
Munising.....	12	.....	Dale Enterprise.....	T.	.....
Newberry.....	12	.....	Wytheville.....	T.	.....
Port Huron.....	T.	*	<i>Washington</i>		
Sault Ste. Marie.....	T.	16.0	Paradise Inn.....	106	.....
Sidnaw.....	7	.....	Snoqualmie Pass.....	58	.....
<i>Minnesota</i>			<i>West Virginia</i>		
Duluth.....	1	†	Bayard.....	T.	.....
Ely.....	4	.....	Bluefield.....	3	.....
Leech Lake Dam.....	T.	.....	<i>Wyoming</i>		
Moorhead.....	0	12.0	Casper.....	1	.....
<i>Montana</i>			Dixon.....	5	.....
Belton.....	2	.....	Dome Lake.....	22	.....
Havre.....	T.	.....	Newcastle.....	2	.....
<i>Nevada</i>			South Pass City.....	4	.....
Austin.....	T.	.....	Yellowstone Park.....	1	.....

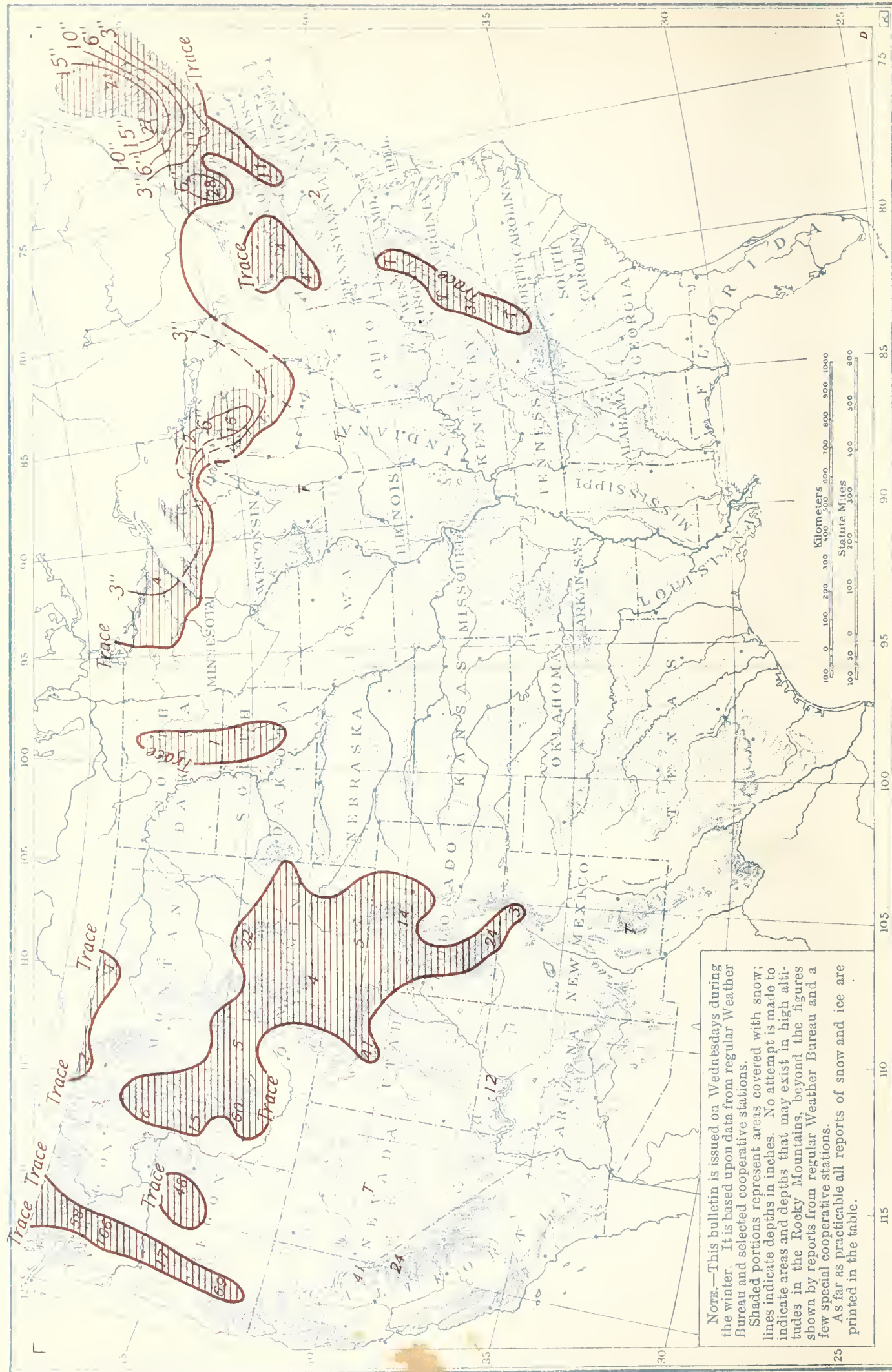
*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable.
T. indicates trace.

Green Bay, ice breaking up; harbor ice at Escanaba decreasing. Lake Michigan: No fields reported along west shore nor east shore to north of Charlevoix; Straits continue solid and windrowed. Lake Huron: Ice fields confined to Saginaw Bay and extreme southern portion; St. Clair River open to below St. Clair; heavy blockade at Algonac; Lake St. Clair, ice running freely into Detroit River. Lake Erie: West and central portions free; small ice fields Ashtabula east to Erie; from Erie east to Buffalo, extensive ice fields, but not heavy. Lake Ontario: Fields confined to extreme east end; St. Lawrence River, opening.

H. C. HUNTER.

This issue closes the season of the Snow and Ice Bulletin of 1930-31.

Depth of Snow on Ground, 8 p. m., March 23, 1931



NOTE.—This bulletin is issued on Wednesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.

Shaded portions represent areas covered with snow; lines indicate depths in inches. No attempt is made to indicate areas and depths that may exist in high altitudes in the Rocky Mountains, beyond the figures shown by reports from regular Weather Bureau and a few special cooperative stations.

As far as practicable all reports of snow and ice are printed in the table.

